Waimakariri District Council
215 High Street
Private Bag 1005
Rangiora 7440, New Zealand
Phone 0800 965 468

DISTRICT PLAN REVIEW

Proposed Waimakariri District Plan - Submission

Clause 6 of Schedule 1, Resource Management Act 1991

Submitter details

*(Our preferred methods of corresponding with you are by **email** and **phone**).*

Full name: A[redacted] J McAllister

Email address: amac.nz1@gmail.com

Phone (Mobile): [redacted] Phone (Landline): —

Postal Address: [redacted] Post Code: 7476

Physical address: _____ Post Code: _____
(if different from above)

Please select one of the two options below:

☑ I **could not** gain an advantage in trade competition through this submission *(go to Submission details, you do not need to complete the rest of this section)*

☐ I **could** gain an advantage in trade competition through this submission *(please complete the rest of this section before continuing to Submission details)*

Please select one of the two options below:

☐ I **am** directly affected by an effect of the subject matter of the submission that:

A) Adversely affects the environment; and

B) Does not relate to trade competition or the effect of trade competition.

☑ I **am not** directly affected by an effect of the subject matter of the submission that:

A) Adversely affects the environment; and

B) Does not relate to trade competition or the effect of trade competition.

Submission details

The specific provisions of the proposal that my submission relates to are as follows: *(please give details)*

To incl 1275 TRAM Rd in the LLRZO for Swannanoa.

My submission is that: *(state in summary the Proposed Plan chapter subject and provision of your submission. Clearly indicate whether you support or oppose the specific provisions or wish to have amendments made, giving reasons) (please include additional pages as necessary)*

growth to the west I support.

I/we have included: _____ additional pages

I/we seek the following decision from the Waimakariri District Council: *(give precise details, use additional pages if required)*

Please see info in green folder. Flood Reports Local info etc.

Submission at the Hearing

☑ I/we wish to speak in support of my/our submission

☐ I/we do not wish to speak in support of my/our submission

☐ If others make a similar further submission, I/we will consider presenting a joint case with them at the hearing

Signature

Of submitters or person authorised to sign on behalf of submitter(s)

Signature [redacted] Date 29 Sept 21

(If you are making your submission electronically, a signature is not required)

Important Information

1. The Council must receive this submission before the closing date and time for submissions.
2. Please note that submissions are public. Your name and submission will be included in papers that are available to the media and public. Your submission will only be used for the purpose of the District Plan review process.
3. Only those submitters who indicate they wish to speak at the hearing will be emailed a copy of the planning officers report (please ensure you include an email address on this submission form).

If you are a person who could gain an advantage in trade competition through the submission, your right to make a submission may be limited by clause 6(4) of Part 1 of Schedule 1 of the Resource Management Act 1991.

Please note that your submission (or part of your submission) may be struck out if the authority is satisfied that at least 1 of the following applies to the submission (or part of the submission):

- It is frivolous or vexatious
- It discloses no reasonable or relevant case
- It would be an abuse of the hearing process to allow the submission (or the part) to be taken further
- It contains offensive language
- It is supported only by material that purports to be independent expert evidence, but has been prepared by a person who is not independent or who does not have sufficient specialised knowledge or skill to give expert advice on the matter.

Send your submission to: Proposed District Plan Submission
Waimakariri District Council
Private Bag 1005, Rangiora 7440

Email to: developmentplanning@wmk.govt.nz

Phone: 0800 965 468 (0800WMKGOV)

You can also deliver this submission form to one our service centres:

Rangiora Service Centre: 215 High Street, Rangiora

Kaiapoi Service Centre: Ruataniwha Kaiapoi Civic Centre, 176 Williams Street, Kaiapoi

Oxford Service Centre: 34 Main Street, Oxford

Submissions close 5pm, Friday 26 November 2021
Please refer to the Council website waimakariri.govt.nz for further updates

28/09/2021

Waimakariri District Council

Dear Development / planning Team.

Submission for 1275 Tram Rd. Swannanoa, 7476.

I'm still keen to have this property incl in the LLRZO. One of the reasons this land was not incl originally was to avoid versatile soils. The fact it is now in a RLZ and has a current RC to subdivide into 4ha lots the farming use moving forward seems limited. I would be keen to link any new development to the east with the School / preschool. The Flood Hazard Report submitted clearly states it is Technically Feasible to build a subdivision at this location to RR4A. I have also been talking to the owners of 64 Winter Rd Id15936 1.2ha lot19 DP71273. They intend to sell within the next year or 2 and they will inform me of this as I have indicated I would like to buy this property. We could extend Winter Rd and make this development an extension of Swannanoa Fields. I would be willing to donate some land to the school to help with its growth if it's deemed beneficial, and works for us and the community.

North growth of Swannanoa you have 9 different property owners. Always a hard task to try and integrate a good outcome with so many voices / budgets.

Seven Mile Property ltd has always been keen to be a major part of the development of this area. Our land to the WEST, 1401 Tram Rd & 1419 Tram Rd has been incl in the overlay which I support. I'm keen to work with WMK to make this realty, However we do have the forestry block to still work with or around (1379 Tram Rd ID9409) We have had a meeting about this with Heike & Rob Hawthorne. As you will appreciate I would like to have the opportunity to purchase this land and develop it as one parcel. Any updates on this would be much appreciated.

Thanks for your attention and time.

Kind Regards,

Andrew McAllister

Seven Mile Property ltd. 027-324-7372

FYI Doc we took to wmk meeting.

Memo

To:	Andrew McAllister	From:	Andrew Tisch
Cc:		Date:	29 April 2019
Subject:	Assessment of WDC Flood Model for 1275 Tram Road		

The site is located within a rurally zoned area east of the existing Swannanoa settlement. The site currently has one house on it. The remaining land is used for grazing and cropping.

The Applicant would like this site to be developed under Residential 4A zoning through inclusion of the land in the Waimakariri Rural Residential Development Strategy.

Background

NZBC E1 requires that surface water from a 2% AEP event must not enter habitable buildings. It requires finished floor levels to be set at a height of the secondary flow path plus an allowance for:

- 500mm freeboard where the surface water has a depth of 100mm or more,
- 150mm freeboard in all other cases.
- In all situations WDC recommend a minimum freeboard of 300mm above the highest flood water level.

WDC have categorised parts of the site as no hazard, low hazard (green) and medium hazard (blue) for flood hazard risk. There is currently 5.98 ha of land with no hazard, 13.8 ha of land with low hazard, and 1.92ha of land with medium hazard.

In medium hazard areas buildings may be allowed but detailed flood assessments are required. At this location WDC has previously recommended that the building of houses be avoided in medium hazard areas.

The WDC's 2015 flood model (South Ashley Catchment) was used at the proposed site. 2005 LIDAR was used to generate contour plans for the site. Climate change was included with a 16% increase in rainfall intensity.

There are no stop banks constructed along the edge of the site.

Some of the property is flooded with flood water flowing through the property through three preferential pathways.

- The deepest water, 400mm, is medium flood hazard and flow can peak around 0.8 m/s during a 200-yr ARI event
- The rest of the site is largely under 200mm and is categorised as low hazard and have flood speeds up to 0.6 m/s.

The overland flow paths start to activate after 13 hours, peak after 15 hours and begin to recede at some point between 15-24 hours.

Future Development

The existing overland flow capacity needs to be maintained.

Stormwater generated from the development needs to be treated and attenuated as per WDC requirements.

The flood hazard from the overland flow passing through the site can be mitigated by excluding houses in medium hazard areas and ensuring houses in low hazard areas are required to build to minimum floor levels as required by WDC.

It may be possible to constrain floodwaters to either, decrease the extent of land with a medium flood hazard risk (and increase lot yields), or re-align flood flow paths to better suit potential site layout requirements.

Design to ensure any filling does not result in flood waters heading up (either near houses in the development or neighbouring properties) or does not channel the flood waters resulting in excessive velocities that could cause scour.

Due to the short duration of an event residents would not be too inconvenienced if they chose to "sit tight" until the flood waters recede. The road network will be designed so that the depth of flooding is generally less than 0.4 m. At this depth with the low velocities experienced the site would be accessible by emergency vehicles if emergency evacuation / assistance were required during an event.

We conclude therefore, that it is technically feasible to build a subdivision at this location to Residential 4A zoning, while maintaining existing flow capacity in the 200 yr-ARI event, and without heading up or concentration of flood waters on neighbouring properties.

1275 Tram Road

Flood Hazard Assessment

Andrew McAllister

2 April 2019

e2 environmental
CONSULTING ENGINEERS

Quality Control

Author	**Lindsay Blakie**	Client	**Andrew McAllister**
Reviewed by	**Zeean Brydon**	Date Issued	**2 April 2019**
Approved by	**Andrew Tisch**	Revision No.	**1**
Doc Name/Location	**rpt 190402 1275 TramRd FHA.docx**		

e2environmental Ltd.
46 Acheron Drive
PO Box 31159
Christchurch NZ

Project No. 19005-01

CONTENTS

1 INTRODUCTION

e2Environmental (e2) has been commissioned by Andrew McAllister to undertake a Section 106 Assessment focusing on flood risk for 1275 Tram Road, Rangiora, 7476. This information will support a submission on the Waimakariri Rural Residential Development Strategy proposing that 1275 Tram Road be included in the land identified for future expansion of Swannanoa.

1.1 Scope

The scope of this report is to:

- Confirm the extent, depth and velocity of flooding on site,
- Identify measures to mitigate the flood risk to allow future potential development of the site,
- Identify measures to ensure overland flow paths are not diverted, impeded, or obstructed; by any future potential development, and
- Assess the effects of any proposed mitigation measures on other property.

1.2 Limitations

The information, views and conclusions drawn concerning the site are based, in part, on information supplied to e2Enviromental by other parties.

e2Environmental has proceeded in good faith on the assumption that this information is accurate.

e2Environmental accepts no liability for any inaccurate conclusions, assumptions or actions taken resulting from any inaccurate information supplied to e2Environmental by others.

2 REGULATORY REQUIREMENTS

2.1 Waimakariri District Plan

The Waimakariri District Council (WDC) is required under the RMA to *"control ... any actual or potential effects of the use, development or protection of land, including for the purpose of the avoidance or mitigation of natural hazards."*

The objectives and policies section of the district plan set out methods to avoid and mitigate natural hazards that are relevant to this site. At this site the hazards include potential for flooding and flood waters entering buildings.

2.2 NZBC E1 Surface Water

NZBC E1 requires buildings to be constructed in a way that protects people and other property from the adverse effects of surface water and additionally requires that surface water resulting from a 2% AEP event must not enter buildings.

Specifically, NZBC E1 requires finished floor levels to be set at a height of the secondary flow path plus an allowance for:

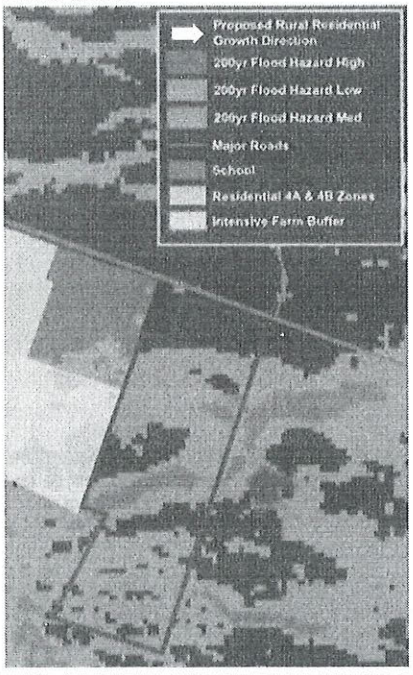
- 500mm freeboard where the surface water has a depth of 100mm or more and extends from the building directly to a road or car park, other than a car park for a single house,
- 150mm freeboard in all other cases.

2.3 Waimakariri District Council Engineering Code of Practice

The Waimakariri District Council Engineering Code of Practice (WDC ECoP) requires floor levels to be set in accordance with the requirements of the District Plan, NZBC E1 or where neither document is applicable requires specific flooding design to be undertaken to demonstrate compliance with the Building Code.

In this instance, the WDC have categorised parts of the site as no hazard, low hazard (green) and medium hazard (blue) for flood hazard risk (Figure 1 below and the Flood Hazard Plan in Appendix B). WDC provide guidance that in medium hazard areas buildings are permitted (subject to approval) and in high hazard areas no buildings are allowed. No high hazard areas are identified.

Figure 1 – WDC Hazard map for 1275 Tram Road



[1] Pre Application Advice from Kalley Simpson to Andrew McAllister, June 2017

WDC recommend that finished floor levels are a minimum of 400mm above existing ground in the rural zone where there is 0-100mm of flood water (i.e. giving 300mm freeboard). This reflects the uncertainty of their modelling in rural areas.

In low hazard areas with flood depths of up to 300mm a finished floor level of 600mm above existing ground is required.

In medium hazard areas (where flood depths are up to 1m) buildings may be allowed but detailed flood assessments are required. At this location WDC has previously recommended that the building of houses be avoided in medium hazard areas.[1]

In all situations WDC recommend a minimum freeboard of 300mm above the highest flood water level.

3 BACKGROUND INFORMATION

3.1 Site Description

The proposed block that is to be included in the land identified for future rural - residential subdivision is located at 1275 Tram Road, in Swannanoa. The site is legally described as Pt RS8183.

The site is located within a rurally zoned area east of the existing Swannanoa settlement.

The site currently has one house on it. The remaining land is used for grazing and cropping.

Two stock water races traverse the site, one centrally and the other on the southern boundary.

A groundwater resurgence drain also flows through the southern third of the site.

3.2 Proposed Development

The Applicant would like this site to be developed under Residential 4A zoning through inclusion of the land in the Waimakariri Rural Residential Development Strategy.

3.3 Site Levels

The general grade of the land falls to the north east at a gradient of approximately 1 in 200.

The WDC's 2015 flood model (South Ashley Catchment) covered the proposed site and used 12m x 12m mesh, which was based on the 2005 LiDAR data set. We have used the 2005 LIDAR data to generate contour plans for the site. See Appendix A for the site topography.

3.4 Hydrology

The site is located within WDC's 2015 South Ashley Catchment model. The model is a rain on grid model and uses a spatially varying rainfall grid based on soil infiltration parameters to accurately estimate the net runoff in different parts of the catchment.

The rainfall hyetograph used in the runoff model corresponds to a 24-hour nested storm using rainfall depths from the 1, 3, 6, 9, 12, 18 and 24-hour events.

3.5 Climate Change

Climate change is likely to affect the runoff generated up catchment in design rain events by increasing the intensity of rainfall events and the resulting runoff.

Results from the 2015 South Ashley model are inclusive of climate change, specifically including a 16% increase in rainfall intensity.

3.6 Flood Protection Infrastructure

There are no stop banks constructed along the edge any of the flow paths or drains through the site.

4 FLOOD RISK ASSESSMENT

4.1 Flood Hazard Mapping

WDC flood hazard mapping shows parts of the site as categorised as a No Hazard to Medium Hazard flood area (refer Figure 1 above).

4.2 Investigation of WDC's 2015 Flood Models

The result for the 200-yr ARI storm event from WDC's 2015 South Ashley Catchment model were investigated to clarify the potential flood hazard within the proposed development site.

The model results show three preferential flow pathways over the property.

Appendix C provides the maximum water depth and maximum speed result[2] for 200-yr ARI storm events.

4.3 Pluvial Flood Levels

Flood levels across the site have been obtained from the 2015 South Ashley

[2] Note, WDC did not provide velocity information so we can only infer flow direction based on contour information.

model for the 200yr (0.5% AEP) nested storm event.

The maximum flood depth results for the 200-yr ARI storm event are provided in Appendix C. The model result shows that most much of the property is flooded with flood water flowing through the property through three preferential pathways.

The deepest water, which is between 300 – 400mm, occurs in the central flow path and WDC have categorised this flow path as having medium flood hazard (see Figure 1 and Figure 4). The flood depth for the rest of the site is largely under 200mm and is categorised as low hazard.

The estimated aggregated peak flow rates through the three preferential pathways from the north to the south are 8.7, 10.8 and 12.2 m^3/s respectively (Appendix C).

4.4 Flood Velocities

WDC do not have the flood velocity results from the 2015 South Ashley Catchment model (i.e. do not have any vector information to describe flow direction), so we have reviewed their 2D flood speed results (included in Appendix C).

The results for flood flow velocity show that maximum flood speed experienced in the central flow path can peak around 0.8 m/s during a 200-yr ARI event. The additional preferential flow pathways in the north and south have flood speeds ranging from 0.4 to 0.6 m/s.

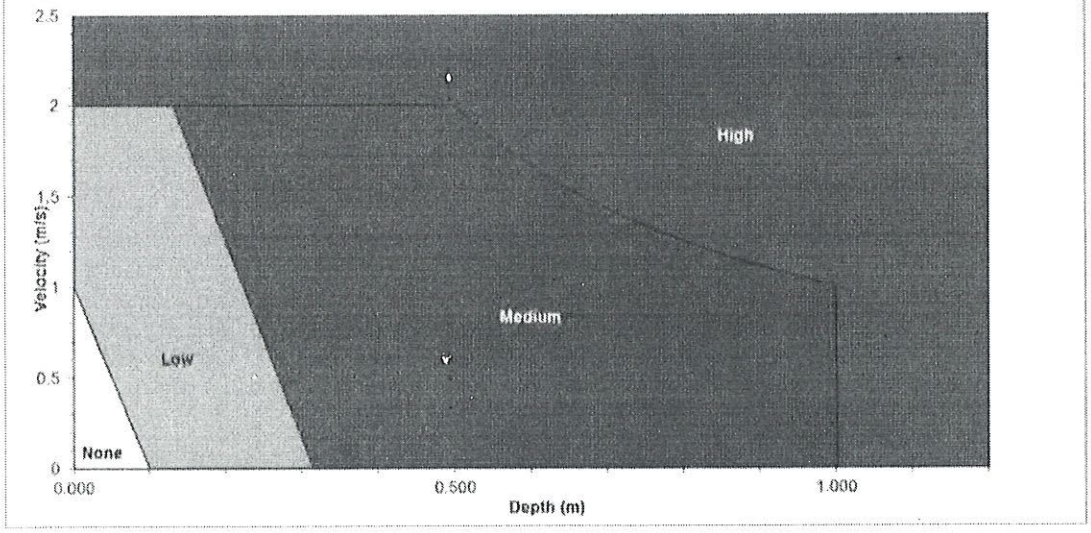
5 FLOOD MITIGATION

5.1 Development Area

The flood hazard mapping confirms that the site has areas of no hazard to medium hazard which are suitable for development. While it is beyond the scope of this report to determine how much land is available for development there is currently:

- 5.98 ha of land with no hazard,
- 13.8 ha of land with low hazard, and
- 1.92ha of land with medium hazard.

Figure 4– Flood Hazard Categories – WDC Localised Flood Hazard Assessment



In any subdivision design, the existing overland flow capacity (generally in the same locations as present) need to be maintained. Stormwater generated from the development needs to be treated and attenuated as per WDC requirements.

Future houses will need to be sited outside the central preferential flow channel where a medium hazard category is identified and and lifted to the levels described above with the appropriate free board.

It may be possible to constrain floodwaters to either, decrease the extent of land with a medium flood hazard risk (and increase lot yields), or re-align flood flow paths to better suit potential site layout requirements. This would require modelling of the existing and post development surfaces to ensure that there are not adverse effects for conveyance (such as under capacity or scour) or heading up on neighbouring properties.

Generally, there are no engineering constraints that would preclude development, but any development proposal would be subject to mitigations outlined below.

5.2 Stormwater Management/Strategy

Swannanoa has been identified as having drainage issues due to high groundwater and groundwater resurgence.

To mitigate additional runoff from the development (in events ≤ 50 yr-ARI) assuming disposal of stormwater to land via soak pits is not possible, rainwater attenuation tanks or ponds may need to be used to attenuate the runoff generated by impervious surfaces back to pre-development runoff rates. If required, this would be assessed as part of a future subdivision consent or private plan change application.

If it were necessary to attenuate runoff from roads and hardstanding areas, attenuation basins would be positioned close to the three preferential flow paths and constructed so that they didn't impede floodwaters passing through the site (i.e. would be very shallow basins built into the banks of the flow channels).

The basins (if required) could be accommodated within any future development layout.

We consider that it will be possible to effectively manage the post development stormwater runoff so as to not increase flood risk either on, or off site.

5.3 Finished Floor Levels

The houses built as part of any future development will be raised, either through raising ground levels or piling to ensure that the habitable areas remain dry in all events up to and including the 200 yr-ARI event.

The final finished floor levels will comply with the WDC planning requirements and will be confirmed once a development layout is identified.

5.4 Flood Compensatory Storage

Our review of the WDC South Ashley 200 yr-ARI event shows that the site does not pond water, it simply flows through the

site and flood waters start receding within 24 hours of the storm event[3].

If the house foundations are solid instead of piled, their locations will be isolated in nature compared to the overall site and their effect on flow paths will be minimal, therefore compensatory storage is not considered to be required.

However, design consideration will be necessary to ensure any filling does not result in flood waters heading up (either near houses in the development or neighbouring properties) or does not channel the flood waters resulting in excessive velocities that could cause scour.

Any filling and associated effects would be assessed as part of any future subdivision consent or private plan change application.

We consider that, given the land area available, it will be technically feasible to limit and mitigate the impact of any filling ensuring that the existing flow capacity is maintained and that the proposed subdivision does not increase the flood risk either on or off site.

5.5 Access / Egress

Our review of the WDC South Ashley Flood model shows the flood risk will only be for a limited duration either side of flood peak. The overland flow paths start to activate after 13 hours, peak after 15 hours and begin to recede at some point between 15-24 hours (see Appendix D).

Due to the short duration of an event residents would not be too inconvenienced if they chose to "sit tight" until the flood waters recede.

However, in addition to this the road network will be designed so that the depth of flooding is generally less than 0.4 m. At this depth with the low velocities experienced the site would be accessible by emergency vehicles if emergency evacuation / assistance were required during an event.

5.6 Overland Flow Paths

The three existing preferential overland flow paths convey significant volumes of flood water across the site in the design event. While development will be excluded from the central flow path houses will be built in the northern and southern flow paths (where the hazard rating is low or no hazard and full flood mitigation is designed).

Generally, the floodwater depths are <200mm in the low hazard area. To mitigate potential effects on neighbouring properties it would be wise to require piled foundations and non-solid fences to mitigate the effect of building in these flow paths. That said, the low density of development and the localised filling (of just the house not out-buildings) may not have a significant effect on flood conveyance. This can be assessed by modelling at a later stage if required.

A culvert or bridge is likely to be required to provide access over the central flow path to access any land to the south of the site. The design of any structure in this flow path would be subject to further

[3] This needs to be confirmed by checking a topo survey of the site

design to ensure that it does not impede flood flows in the 200 yr-ARI event and to ensure emergency vehicle access is possible to the southern areas.

6 STOCK WATER RACE & RESURGENCE DRAIN

Any proposed development of the site will need to take into consideration the presence of the stock water races and groundwater resurgence drain, in particular complying with the required set back distances and ensuring groundwater spring flow paths are maintained.

7 CONCLUSION

The flood hazard from the overland flow passing through the site can be mitigated by excluding houses in medium hazard areas and ensuring houses in low hazard areas are required to build to minimum floor levels as required by WDC.

Overland flow path capacity through the site must be maintained. In the central flow path this would be achieved by excluding development and if necessary, bridging it to provide access to lots to the south.

In the North and South, the flow capacity would be maintained by raising buildings and allowing floodwaters to pass under them or around them.

We conclude therefore, that it is technically feasible to build a subdivision at this location to Residential 4A zoning, while maintaining existing flow capacity in the 200 yr-ARI event, and without heading up or concentration of flood waters on neighbouring properties.

8 GLOSSARY:

ARI – average recurrence interval is the average or expected periods between exceedances of a given rainfall total accumulated over a given duration. It is implicit in this definition that the periods between exceedances are generally random.

DEM - digital elevation model (DEM) is a 3D representation of a terrain's surface and sometimes generated from LIDAR survey data.

Nested Storm - a synthetic storm event with the peak intensity at the mid-point which has multiple rainfall durations overlaid in the data set.

Resurgence Drain - a drain that intercepts groundwater and spring flows. It is periodical - flows when groundwater levels are higher than the drain invert.

Overland Flow Paths - the routes taken by surface water (storm runoff) when the formed drainage network is overloaded by rain events that exceed the capacity of the drainage network.

APPENDICES

APPENDIX A – Site Contours

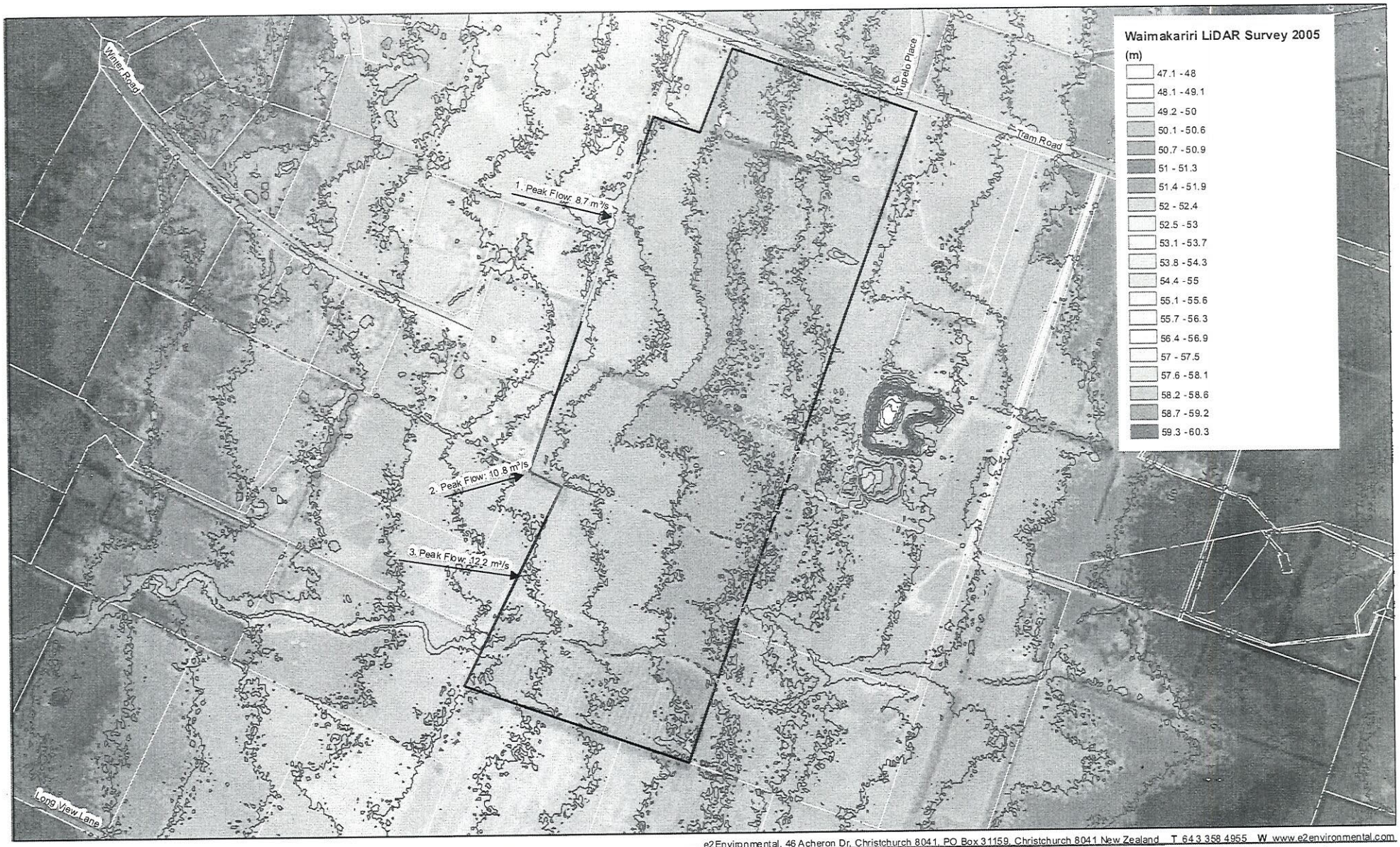
APPENDIX B – Flood Hazard Plan

APPENDIX C – WDC 200 yr-ARI Flood Depth & Velocity Results

APPENDIX D – Time Series of WDC 200 yr-ARI Flood Extent

1275 Quarry Road
Andrew McAllistar

APPENDIX A – Site Contours



e2Environmental, 46 Acheron Dr, Christchurch 8041, PO Box 31159, Christchurch 8041 New Zealand T 643 358 4955 W www.e2environmental.com

Paper Size: A3

0 70 140 210 Meters

Coordinate System: NZGD 2000 New Zealand Transverse Mercator
Projection: Transverse Mercator
Datum: NZGD 2000

N

1. 54.3m Contour - DS Flood Level
2. 54.2m Contour - DS Flood Level
3. 54.6m Contour - DS Flood Level
Proposed Development Lot
Contour 0.5m Interval

Andrew McAllister
19008 1275 Tram Road

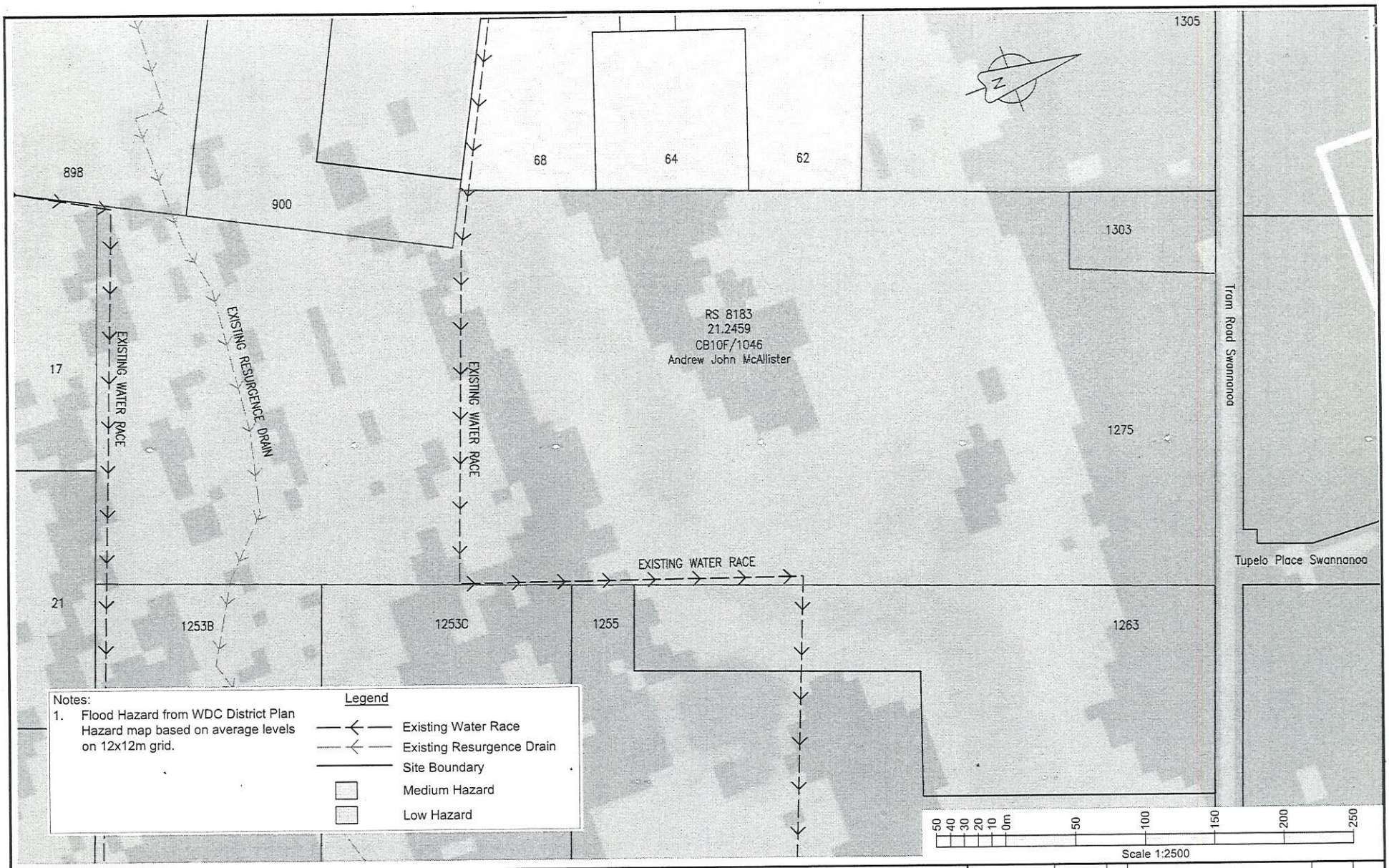
Job Number	19008
Revision	A
Date	20 03 2019

Topography - 2005 LiDAR Survey
1275 Tram Road Swannanoa

Author: Ting Powell
Document Path: M:\GIS\Projects\19008_ Tram Rd 1275 WDC\19008_ Tram Rd 1275 WDC_2005LiDAR.mxd

1275 Quarry Road
Andrew McAllistar

APPENDIX B – Flood Hazard Plan



e2environmental CONSULTING ENGINEERS

Unit 1/46 Acheron Drive PO Box 31159, Christchurch
P 64 3 358 4955 www.e2environmental.com

Client: ANDREW MCALLISTER

Project: 1275 TRAM ROAD

Title: FLOOD HAZARD PLAN

Designed	LMB				
Drawn	MP	A	FOR APPROVAL	28.03.19	LMB
Checked		REV	COMMENTS	DATE	APR
Approved		Scale	1:2500(A3)	Drawing No	19008-01-001 A
Date	March 2019	Sheet	1 of 1		Revision

1275 Quarry Road
Andrew McAllistar

APPENDIX C - WDC 200 yr-ARI Flood
Depths & Velocity Results

e2Environmental, 46 Acheron Dr, Christchurch 8041, PO Box 31159, Christchurch 8041 New Zealand T 643 358 4955 W www.e2environmental.com

Paper Size: A3

0 70 140 210 Meters

Coordinate System: NZGD 2000 New Zealand Transverse Mercator
Projection: Transverse Mercator
Datum: NZGD 2000

N

Proposed Development Lot

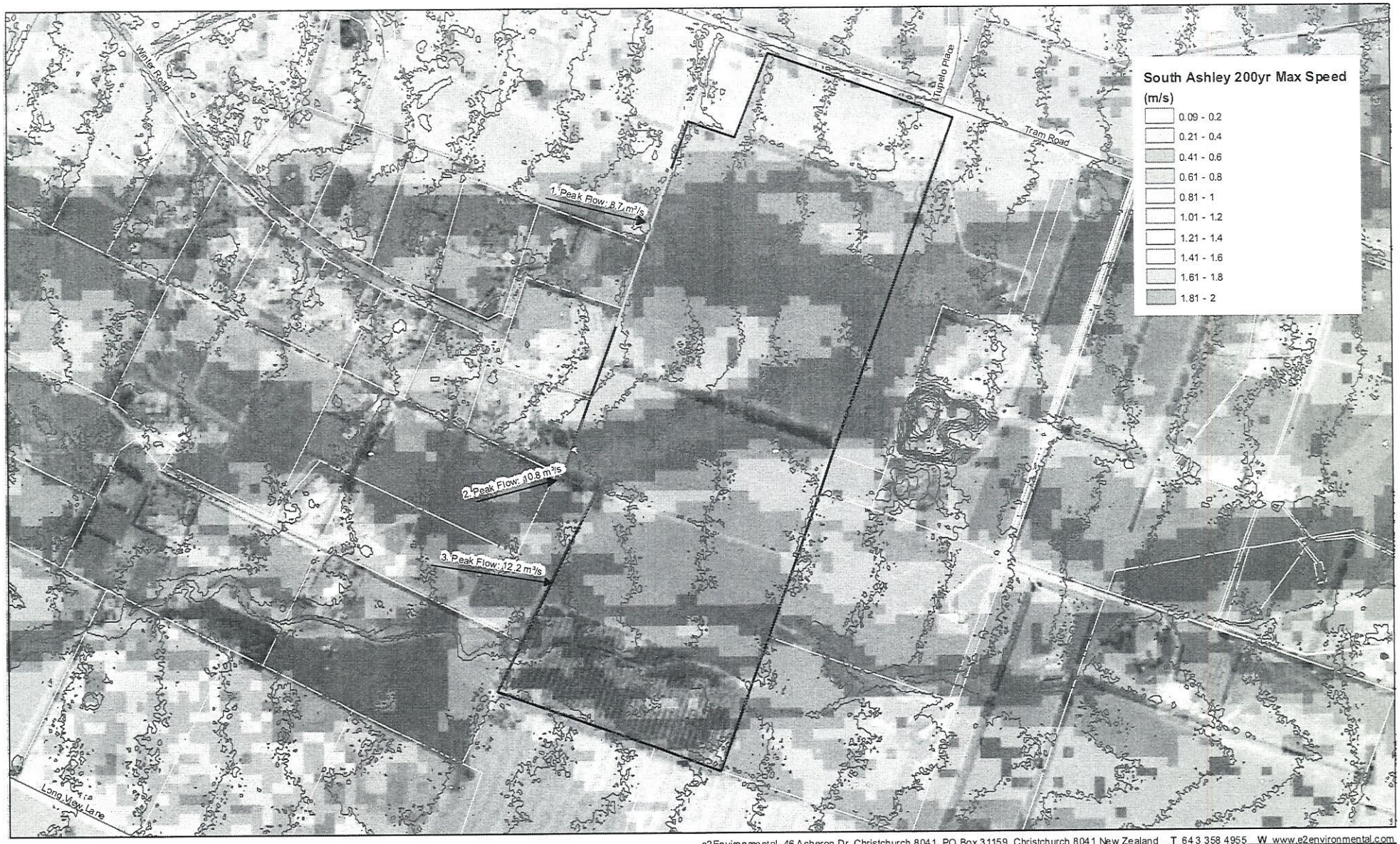
Contour 0.5m Interval

Andrew McAllister
19008 1275 Tram Road

Job Number	19008
Revision	A
Date	20 03 2019

2015 South Ashley Model Result Maximum Water Depth
1275 Tram Road Swannanoa

Author: Ting Powell
Document Path: M:\GIS\Projects\19008_ Tram Rd 1275 WDC\19008_ Tram Rd 1275 WDC_MaxWD.mxd



e2Environmental, 46 Acheron Dr, Christchurch 8041, PO Box 31159, Christchurch 8041 New Zealand T 643 358 4955 W www.e2environmental.com

Paper Size: A3

0 70 140 210 Meters

Coordinate System: NZGD 2000 New Zealand Transverse Mercator
Projection: Transverse Mercator
Datum: NZGD 2000

N

Contour 0.5m Interval

Proposed Development Lot

Andrew McAllister
19008 1275 Tram Road

Job Number	19008
Revision	A
Date	20 03 2019

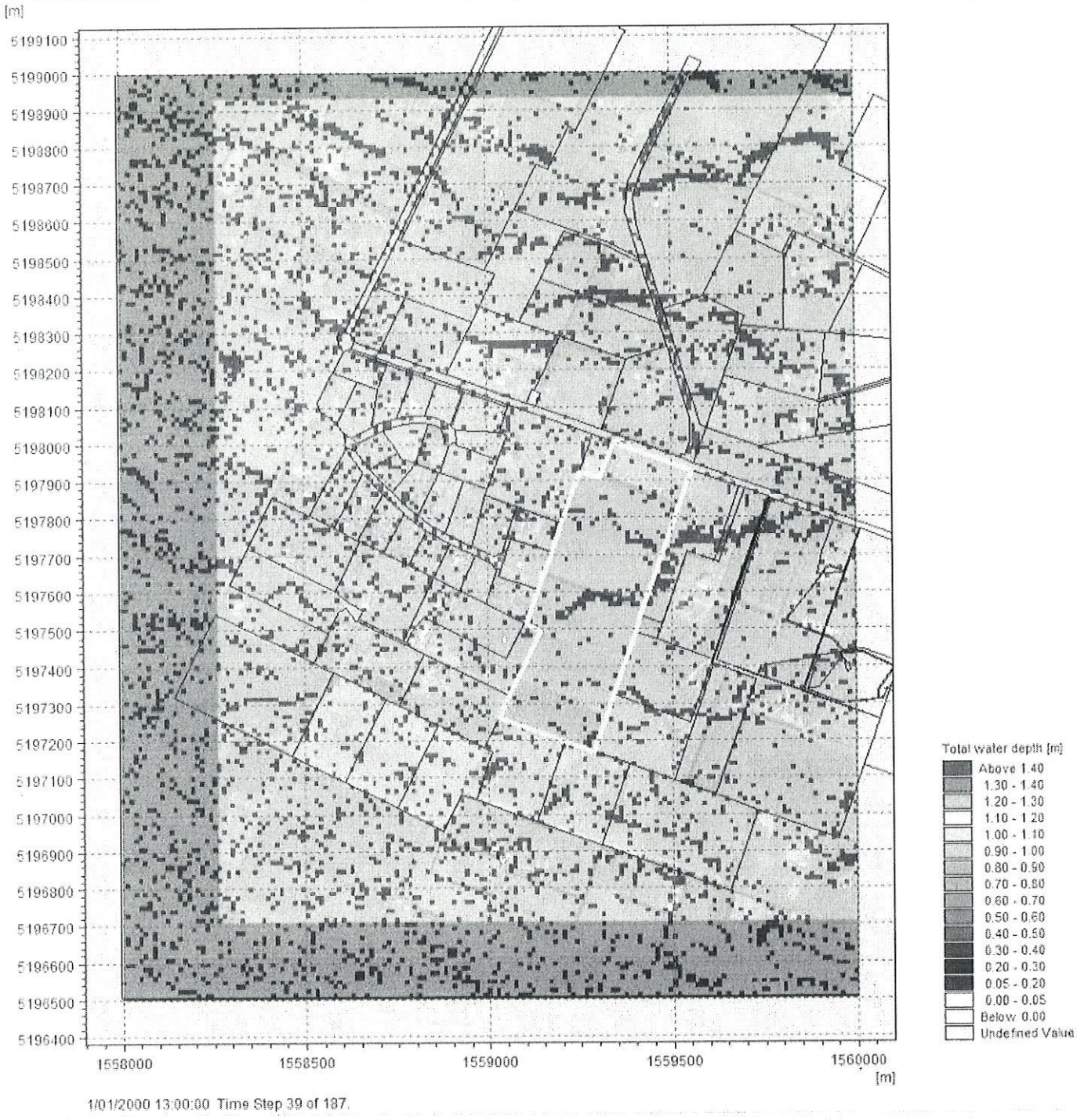
2015 South Ashley Model Result Maximum Current Speed
1275 Tram Road Swannanoa

Author: Ting Powell
Document Path: M:\GIS\Projects\19008_ Tram Rd 1275 WDC\19008_ Tram Rd 1275 WDC_MaxSpeed.mxd

1275 Quarry Road
Andrew McAllistar

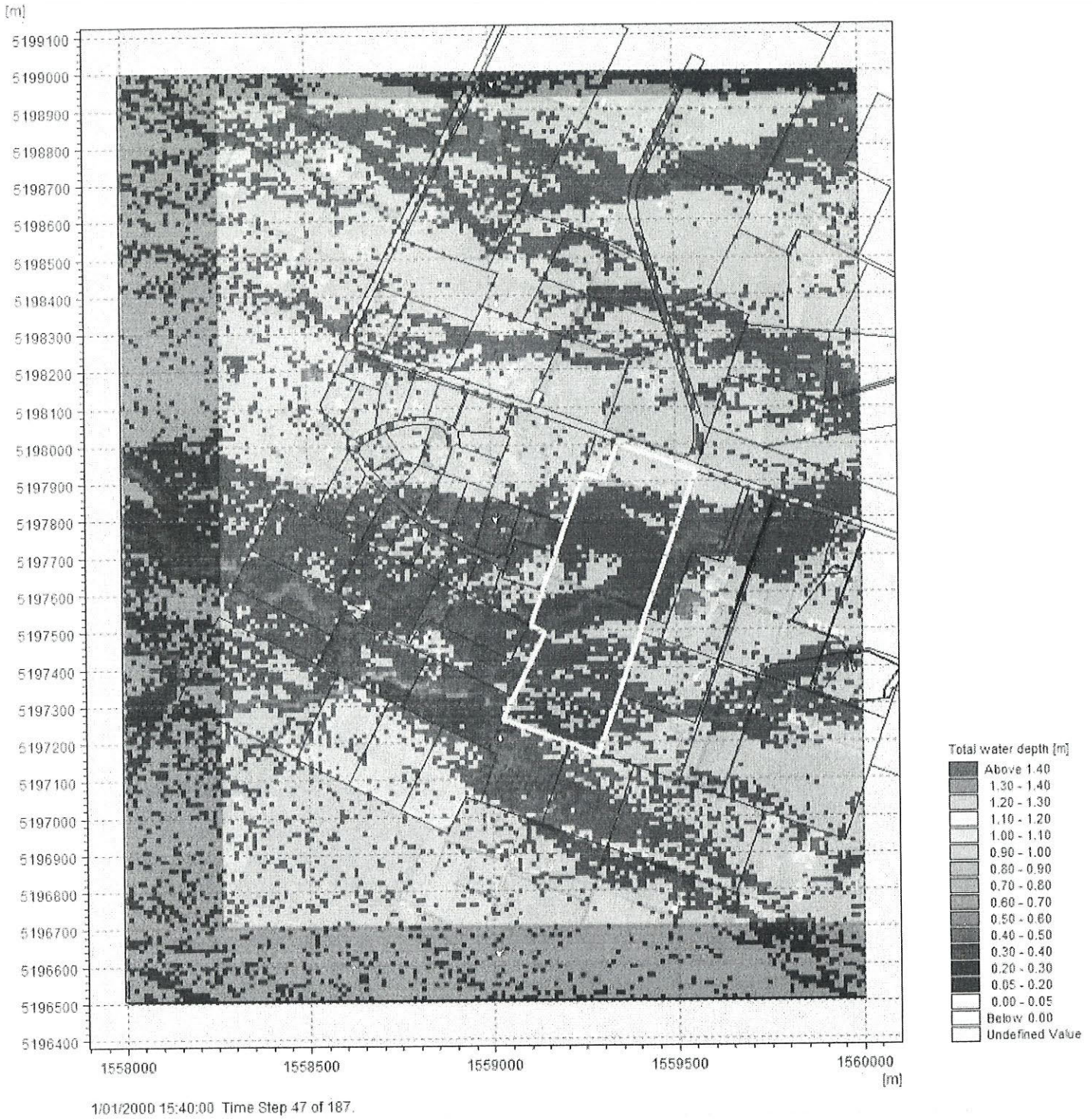
APPENDIX D – Time Series of WDC 200 yr-ARI Flood Extent

Flood Depth of WDC South Ashley Result
200yr ARI 13:00 hrs (rising)



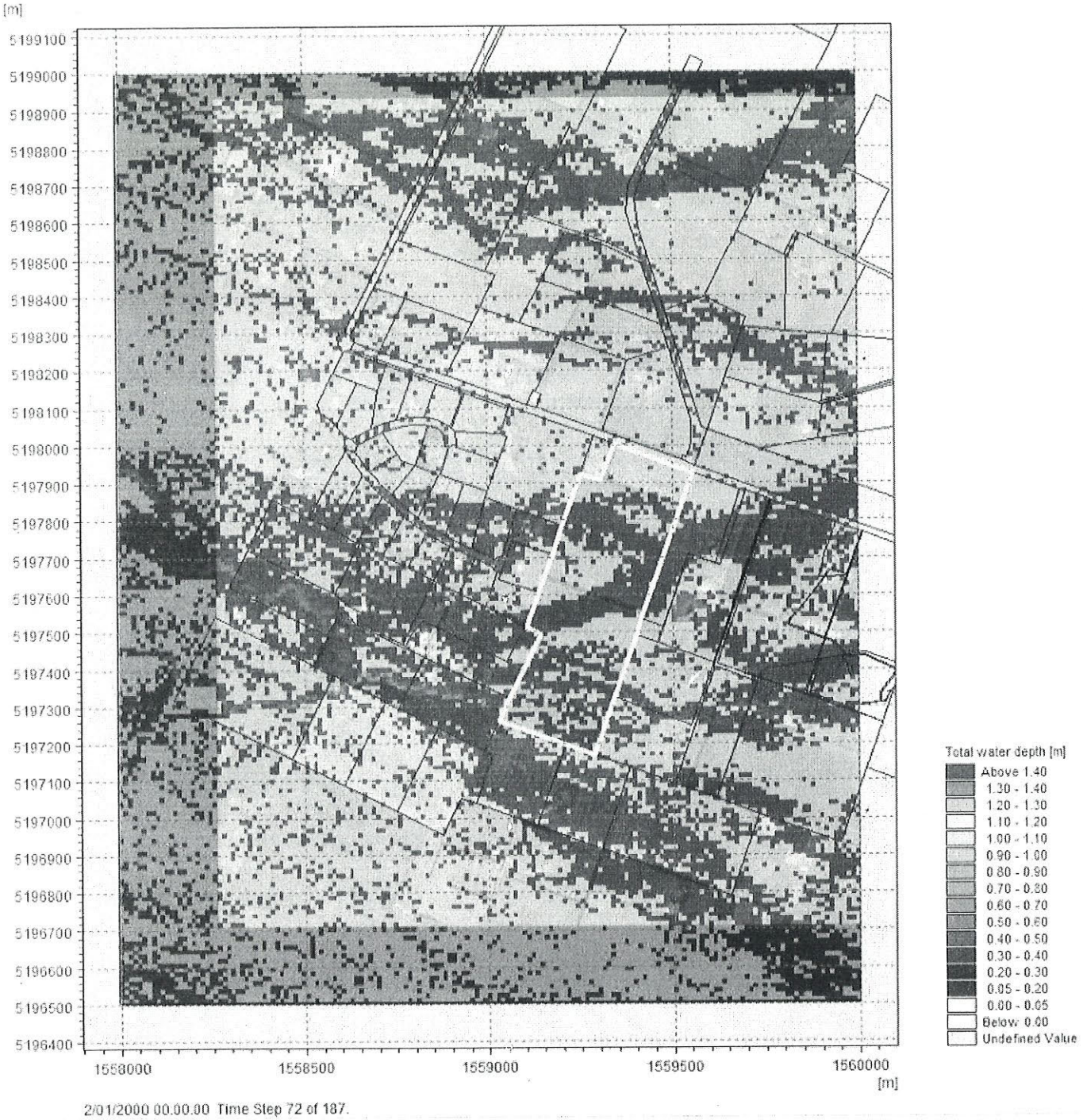
1/01/2000 13:00:00 Time Step 39 of 187

Flood Depth of WDC South Ashley Result
200yr ARI 15:40 hrs (peak)



1/01/2000 15:40:00 Time Step 47 of 187.

Flood Depth of WDC South Ashley Result
200yr ARI 24:00 hrs (receding)



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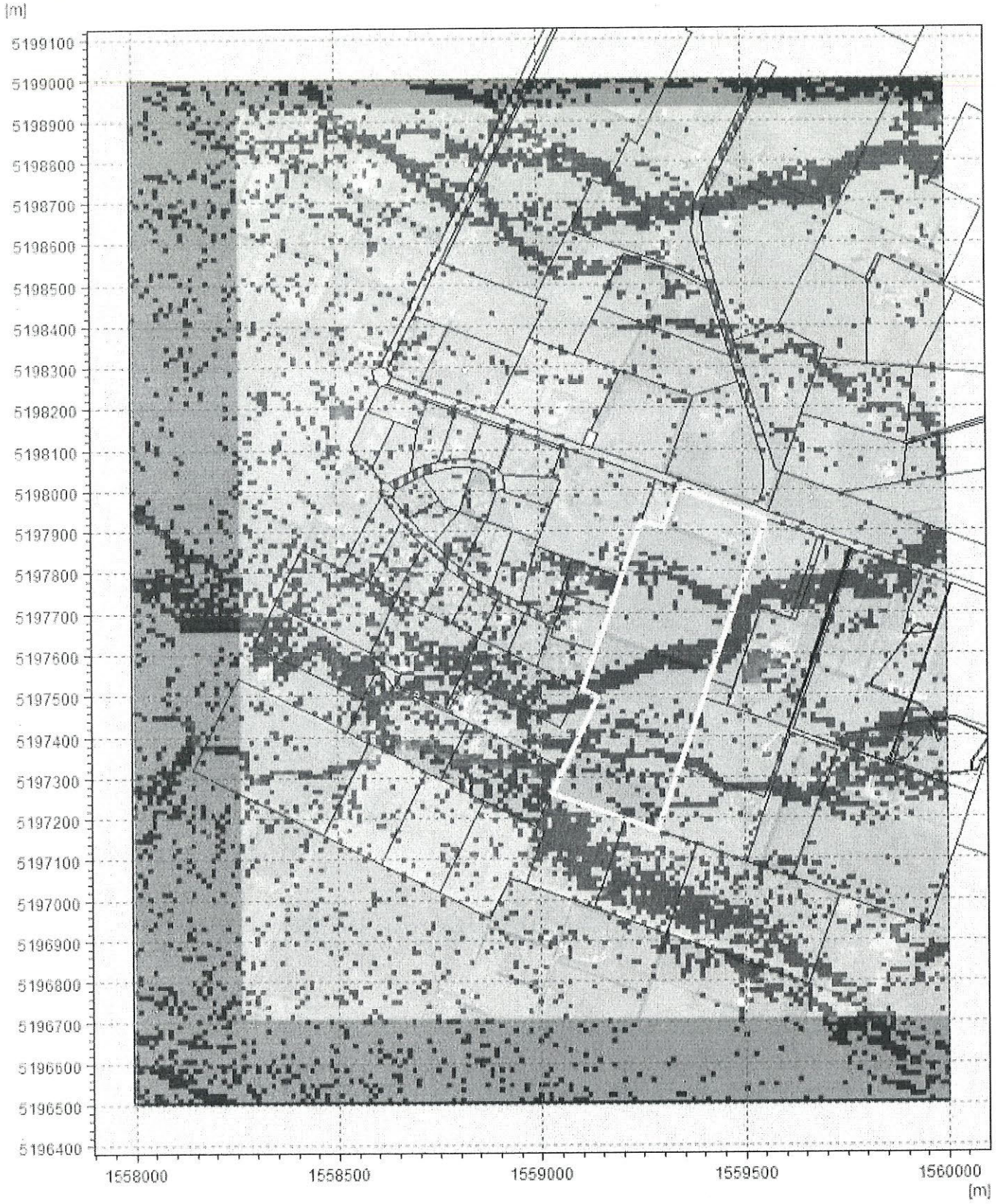

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Urbis

traffic planning and development

Preliminary Transport Assessment

Proposed Rezoning and Subdivision

1275 Tram Road, Swannanoa

15th April 2019

Reference: 636001

Revision: Submission Lodgement

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1.0 INTRODUCTION

The purpose of this report is to provide a preliminary transportation assessment for a possible rezoning and subsequent subdivision at 1275 Tram Road, Swannanoa. The rezoning proposal is part of a submission to the Waimakariri District Council seeking that it identifies this land as a potential area for future rural residential development within the District Development Strategy, any subsequent review of the Rural Residential Development Strategy and the future review of the Waimakariri District Plan.

This assessment will provide a compliance assessment of the proposal against operative District Plan design requirements, and then provide an assessment of potential transport related design issues that would require consideration as part of any future rural-residential development of the site. This assessment also discusses the relevant objectives and policies of the Waimakariri District Plan and the Canterbury Regional Policy Statement.

This assessment concludes that:

- The site is ideally located from a transportation perspective for rural residential redevelopment as a result of the site location alongside existing rural residential and non-residential land use activity.
- The site can be developed in a manner that avoids direct allotment access to Tram Road.
- The necessary additional road intersection with Tram Road could be located with suitable separation from other nearby intersections such that a safe traffic environment along Tram Road can be maintained.
- The site location alongside Swannanoa School and Preschool means that these activities could be included within an overall integrated site access strategy for this section of Tram Road.
- The proposal is consistent with the objectives and policies relating to transport in both the Waimakariri District Plan and the Canterbury Regional Policy Statement.
- The proposed rezoning, subject to the design recommendations made in this report, is able to be fully supported from a transportation perspective.

2.0 THE APPLICATION SITE

2.1 Location and Legal Description

The site is legally described as Pt. RS 8183 and is held in Certificate of Title CB10F/1046. The site has an area of 22.4 hectares and is located at 1275 Tram Road as shown in Figure 1 below:

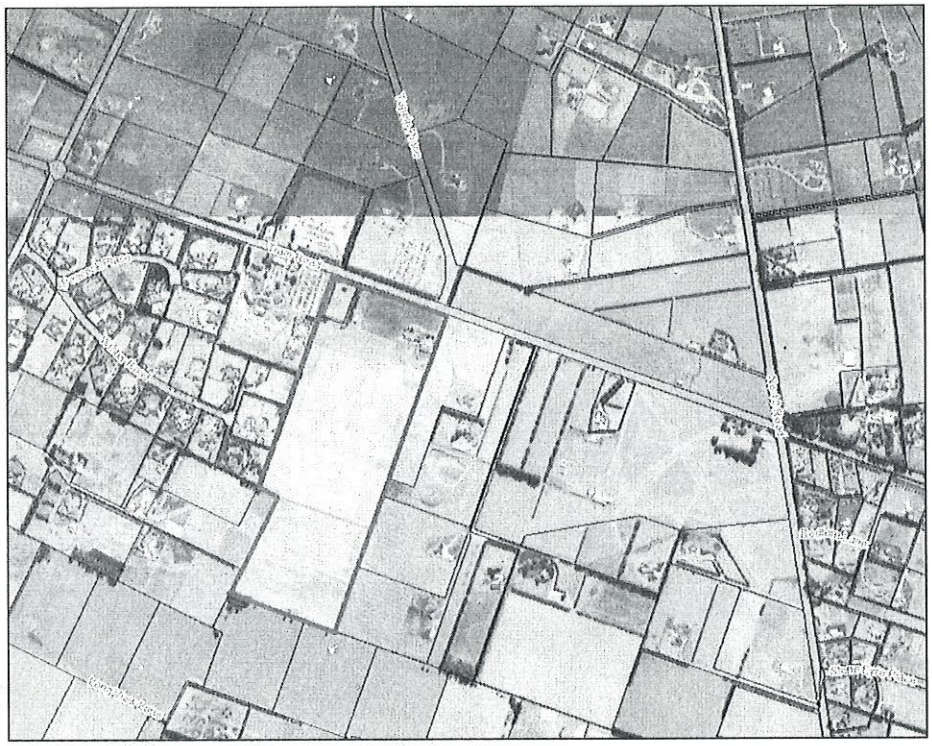

Figure 1: Location of application site (outlined in red)

Figure 1 shows that the site currently contains:

a) A dwelling at the north eastern side and a shed at north western side of the site. The rest of the site is vacant and in paddocks used for agricultural purposes.

b) Vehicle access to the dwelling is gained from Tram Road in a position almost opposite the Tupelo Place intersection.

Figure 1 also shows that the site immediately adjoins existing rural development areas within Swannanoa. The land to the immediate west of the site is the Swannanoa Fields rural residential subdivision. The site directly adjoins the Swannanoa School and Pre-school to the west.

The site has a District Plan zoning of Rural as shown in Figure 2 below:

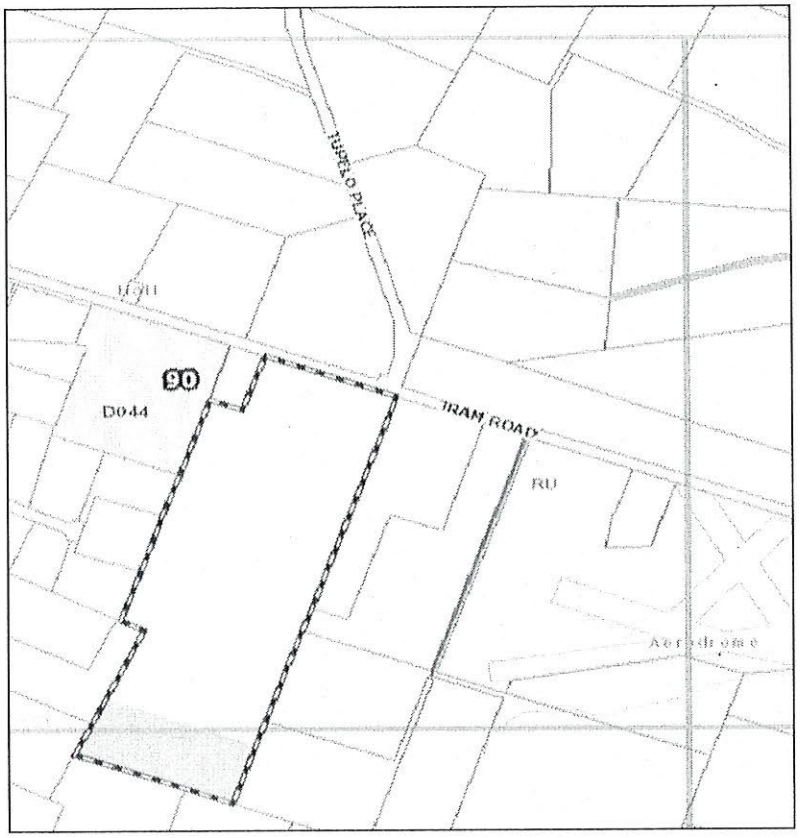

Figure 2: District Plan zoning boundaries (application site identified black outline)

Figure 2 also shows that the application site is surrounded to the north, south and east by *Rural* zoning (grey), and generally to the west by *Residential 4B* zoning (yellow). The Swannanoa School which has a designation for educational purposes (blue).

3.0 THE ROAD NETWORK

Figures 1 and 2 shows that the site has sole road frontage to Tram Road. The site is located generally opposite the Tupelo Place intersection, and located 950 metres west of the No 10 Road intersection and 850 metres east of the Two Chain Road intersection.

3.1 Tram Road

The transport planning and geometric design features of Tram Road are summarised in Table 1 below:

Road Name	**Tram Road**
Road Classification	Arterial Road
Speed Limit	100 kilometres per hour, temporary lower speed limit used for school hours to the west of the site.
Traffic Volume	3038 vehicles per day according to CAS. Council traffic counts were undertaken for Tram Road 900m west of Bradley Road on 27 September – 15 October 2018. In summary, this found: • Northbound daily volume: 2150 vehicles per day • Northbound AM peak hour volume: 143 vehicles per hour • Northbound PM peak hour volume: 331 vehicles per hour • Southbound daily volume: 2233 vehicles per day • Southbound AM Peak hour volume: 293 vehicles per hour • Southbound PM Peak hour volume: 164 vehicles per hour
Carriageway Description	7.2-metre-wide carriage way accommodating traffic flow in two directions with marked centre line. To the west of the site the road centreline changes to a painted median that extends to a position 130m west of the western boundary of the School. The median contains right turn bays for the entrances to the school and the preschool.
Road Connections	Tupelo Place located at the eastern end of 1275 Tram Road. No 10 Road 950m to the east. Two Chain Road 800m to the west.
Pedestrian Infrastructure	1.2m wide footpath present on the southern side of the road from the school to Tupelo Place.
Cycling Infrastructure	The footpath is shared between the cyclists and pedestrians. .
On Street Parking	Unrestricted parking in the vicinity of the application site.
Additional Notes	Power lines- southern side of the road

Table 1: Tram Road Description

Figure 3 below presents the traffic volume provide for Tram Road in the vicinity of the site based on the Council's September 2018 traffic count data for the count station located 900 metres west of Bradley Road (approximately 2km east of the site).

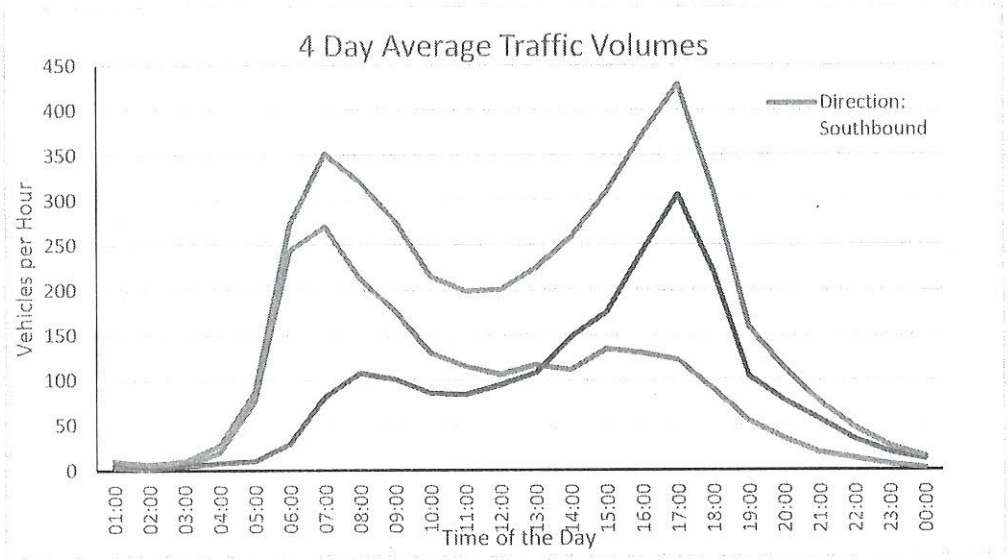

Figure 3: Tram Road Traffic Volume Profile for Count Station located 900 metres west of Bradley Road

Figure 3 highlights the strong tidal bias in the through traffic flow with eastbound bias peaking at 290vph in the mornings and westbound bias peaking at 330vph in the evenings. Peak two-way traffic flow occurs around 5:00pm. This traffic flow profile reflects 'commuter' traffic patterns along the road. The recorded traffic volumes are well below the theoretical design capacity of the road at around 900 vehicles per hour per lane.

As noted earlier, the speed limit on Tram Road outside the site is 100km/h. The operating speed of the road was record through a sample radar survey at 3:45pm on the 3rd April 2019. The results of this sample surveyed are presented in Table 2 below:

Sample Size = 76 vehicles	Eastbound	Westbound
Average Speed	83.7	92.4
85%ile Speed	99	101

Table 2: Tram Road Operating Speeds at 3:45pm on 3rd April 2019

The recorded operating speeds indicate that any site access design should be based on a 100km/h sped environment.

Other general comments in relation to the Tram Road environment outside the site include:

- The temporary speed limit that operates during the before and after school periods reduces the speed limit outside the school and pre-school of 70km/h. The speed limit poles are located within concrete islands located either side of the sealed carriageway. These islands create a 'rural speed threshold' that are located at the commencement of the painted median treatment.
- The existing shared footpath/cycleway along the southern side of Tram Road is utilised by school children travelling between the school and Tupelo Place. There is no specific infrastructure that then connects across Tram Road to Tupelo Place itself.
- The concrete power poles that run along the southern side of Tram Road include three poles located along the site frontage. These are positioned 40 metres, 125 metres and 210 mete4rs form the eastern site boundary. Any future site access would need to clear these poles with suitable sight distances past the poles being provided.

3.2 Tupelo Place

The geometric design features of Tupelo Place are summarised in Table 3 below:

Road Name	**Tupelo Place**
Road Classification	Local Unsealed Road as defined in the District Plan, however it is sealed.
Speed Limit	100 kilometres per hour
Traffic Volume	50 vehicles per day according to CAS. 50 vehicles per day according to mobileroad.org (2017)
Carriageway Description	Approximately 6.5-metre-wide carriage way accommodating traffic flow in two directions
Road Connections	Tram Road across from the subject site, controlled by a give way sign against Tupelo Place.
Cycling Infrastructure	There is no cycling specific infrastructure
Pedestrian Infrastructure	No footpaths
On Street Parking	Unrestricted parking in the vicinity of the application site.
Additional Notes	There are brick feature walls on either side of the road creating the image of a private access road. There is a gate at the intersection with Tram Road (although it is unknown if this can be closed).

Table 3: Tupelo Place Road Description

3.3 Road Safety

A search of the NZTA CAS database for the most recent 5-year period (2015-2019) was undertaken for the section of Tram Road between Two Chain Road and No 10 Road. Five reported crashes have been found and these are described in Table 4 below:

Crash ID	Crash Date	Crash Description	Crash Factors	Road Conditions	Injuries
201613158	Wednesday 25/05/2016 06:39 pm	Car/Wagon2 turning right hit by oncoming Car/Wagon1 SDB on Tram Road.	Car/Wagon2, misjudged another vehicle	Dry, Dark, Fine	Minor
201614462	Tuesday, 07/06/2016 01:20 pm	Car/Wagon1 NBD on Tram Road hit Car/Wagon2 crossing at right angle from right, Car/Wagon1 hit fences.	Car/Wagon1, did not check/notice another party from other direction, failed to give way at priority traffic control	Fine, Bright sun, Fine	Minor
201812108	Monday, 19/03/2018 08:01 am	Car/Wagon1 EBD on Tram Road hit Car/Wagon2 crossing at right angle from right.	Car/Wagon2, alcohol test below limit, did not check/notice another party from other direction, did not stop at stop sign	Fine, Twilight	Serious
201814536	Saturday, 19/05/2018 04:50 pm	Car/Wagon1 EBD on Tram road hit Car/Wagon2 crossing at right angle from right.	Car/Wagon2, alcohol test below limit, did not check/notice another party from other direction, failed to give way at priority traffic control	Dry, Twilight, Fine	Minor
201710316	Wednesday, 18/01/2017 02:38 pm	Car/Wagon1 NBD on No 10 Road hit Car/Wagon2 crossing at right angle from right.	Car/Wagon1, did not check/notice another party from other direction, failed to give way at priority traffic control	Dry, Overcast, Fine	Minor

Table 4: Description of vehicle accidents within the vicinity of the proposal site.

Overall, there is no indication of any road safety issues that are likely to be exacerbated by the proposal. All the crashes found were due to the misjudgement of the drivers (right of way). No crashes occurred in relation to accesses to properties off Tram Road.

4.0 THE PROPOSAL

4.1 General Description

It is proposed to rezone the site to Residential 4A and then subsequently subdivide the application site and develop it for rural-residential purposes consistent with this zoning.

No detailed subdivision plans for the site have been at the time of preparing this report. However, noting the proposed zoning and a minimum lot size of 5,000m^2 (Rule 32.1.1.21 of the Waimakariri District Plan requires a minimum allotment size of 5,000m^2 in the Residential 4B zone), and allowing 10% of the site to be lost to roads, reserves and the like, it is estimated that the site could yield around 35-40 allotments.

4.2 Site Access Arrangement

Noting site access arrangements for similar rural-residential development elsewhere along Tram Road (with Tupelo Place being the closest example), for the purpose of this assessment it is assumed that the site could be serviced from one new site access road that would be a cul-de-sac extending from the southern side of Tram Road.

4.3 Estimated Trip Generation

Table 8.1 within Section 8.4.5 of the Council's Engineering Code of Practice specifies a design generation rate of 8 trips per household per day for dwelling units located in rural areas. The Code adds that If surveyed data is available for areas with similar characteristics, use this in preference to the 8 trips value, due to the variation in generation rates throughout the District.

A trip generation survey was undertaken by Urbis in 2007 for an almost identical subdivision at Sedona Groves. This survey gave a trip generation rate of 9 trips per dwelling unit per day, 0.64 trips per dwelling unit in the AM peak hour, and 1.04 trips per dwelling unit in the PM peak hour. Based on these rates, the proposed subdivision for 40 dwellings is estimated to generate 360 trips per day 25 trips in the AM peak hour, and 41 trips in the PM peak hour.

5.0 DISTRICT PLAN COMPLIANCE ASSESSMENT

5.1 Compliance Commentary

The following commentary is provided in terms of transport-related design requirements in the Waimakariri District Plan.

a) Under Rule 30.1.1.9, new roads shall be constructed in accordance with the requirements in Table 30.1, which for a cul-de-sac is as follows:

Design feature	Requirement
Minimum width of road (m)	16
Minimum lane width (m)	3
No. of lanes	2
Parking lanes width (m)	2
Minimum no. of parking lanes	1
Minimum footpath width (m)	1.5
Minimum no. of footpaths	1
Street lighting	NZS 6701 Lighting
Minimum street trees per 20m	1

Table 5: District Pan design requirements for a local road.

For the purpose of this assessment it is assumed that the internal road network will be built to comply with relevant District Plan and Code of Engineering Practice Design requirements.

b) Rule 30.6.1.1 requires sites to have legal access to a road constructed to the relevant standards in Table 30.1. The proposal will comply as all sites will have direct access, or will have private accessways, to the proposed new internal road.

c) Rule 30.6.1.13 requires access to rear sites to be provided with an access legal width of 4-7 metres depending upon the number of allotments served by the access. The proposal can comply with this rule.

d) Rule 30.6.1.15 requires all accessways within the Residential 4B zone to be formed to all weather standards. The proposal can comply with this rule.

e) Rule 30.6.1.24 requires vehicle crossings onto arterial roads with a 100km/h speed limit shall have minimum unobstructed sight distances of 250 metres in each direction. The straight alignment of Tram Road means that this is easily achieved.

f) Rule 30.6.1.26 requires a minimum separation distance of 75 metres between new vehicle crossings and intersections with an arterial road. For direct site access to Tram Road, any site access would need to be a minimum of 75 metres from both Tupelo Place and the proposed new internal road. Noting the 225m site frontage to Tram Road, this would limit direct site access to the western half of the site frontage.

g) Rule 30.6.1.32 requires a minimum 800 metre spacing between road intersections on a 100km/h road. Noting the intersection of Tupelo Place opposite the eastern site boundary, and noting a 225m site frontage to tram Road, it is not possible to provide a new intersection form this site onto Tram Road.

5.2 Summary of Non-Compliances

While a detailed subdivision plan is yet to be developed for the proposal, it is likely that the only transportation related District Plan design non-compliance will relate to the intersection setback issue.

6.0 ASSESSMENT OF TRANSPORT EFFECTS

The following provides an assessment of effects associated with the proposed access road for the subdivision. It is considered that an assessment of effects relates to:

a) The provision of direct allotment access from Tram Road;

b) The optimum location for a new local road intersection from the site frontage;

c) Internal road layout and connectivity;

d) Potential effects on road safety.

Discussing these matters in turn:

6.1 Direct Allotment Access

The site has a 225m frontage to Tram Road. Allowing for a new local road intersection will occupy 16m of frontage, leaving 209m. A minimum site area of 5,000m^2 in the Residential 4B zone, and assuming a reasonably square allotment shape, requires a side boundary length of around 70m. This means that around 3 (possibly 4) allotments could be created along the Tram Road site frontage.

The required 75m access setback from intersections means that only the potential central allotment could have direct site access as an otherwise permitted activity. Noting the reduced property access function of arterial roads, and noting Policy 6.3.9 of the Regional Policy Statement where legal and physical access should not be provided to an arterial road, there should be limited site layout impediment to providing indirect property access to any proposed allotments facing Tram Road.

Preventing direct allotment access to Tram Road offers road safety benefits compared to an unrestricted site access situation. NZTA Planning Policy Manual Table App5B/6 – Summary of accident effects of accessways on rural roads notes that:

- *A common rule of thumb is that each extra accessways increases the accident rate by 10 accidents per 100mvkm, not including major intersection accidents.*
- *Removal of access restrictions (say, a ten-fold increase in accessway density) can increase the accident rate 2 - 3 times or more. Typically, the comparative accident rates for no access control: partial control: high level of control will be roughly in the ratios 100:60:40.*
- *Permitting minor intersections and a few private entrances (partial control) has been found to increase the rate 40 - 60%. One source estimates an increase of up to 15% for each new accessway.*

- *Removal of controls on a partially-controlled highway (permitting frequent private entrances) can increase the accident rate a further 60 - 75%, or up to 10% for each new accessway.*
- *The effect of access controls is much greater at lower traffic volumes. Adding 10 accessways per kilometre can increase the accident rate by a multiple of 4 at 2000 vehicles/day.*

The development of rural-residential subdivisions that do not have direct allotment access to the arterial or strategic road network, is accepted traffic engineering practice in the interest of preserving network function and road safety.

Preventing direct allotment access to Tram Road could be achieved through providing access either directly from the necessary internal access road for via access legs connecting to it.

6.2 New Intersection Location

It was noted earlier than the 225m site frontage means that it is not possible to meet the District Plan requirement for an 800m separation distance form the Tupelo Place intersection. This separation requirement used to be specified in an earlier version of the NZTA Planning Policy Manual. However, the latest version of this manual has moved away from a set-dimension approach to assessment based on consideration of a number of factors including:

- *Consistency with relevant planning documents, including RLTSs, regional growth strategies, RPSs, district plans and any structure plans.*
- *The access controls on the road.*
- *Consistency with the applicable road hierarchy.*
- *How the intersection will affect road safety.*
- *The level of development likely to take place and the future transport demand that would create on the intersection.*
- *The projected operating demand on the approach roads and whether the intersection would significantly compromise average vehicle speeds or cause delays.*
- *The cumulative effects of the intersection relative to the number and location of existing intersections.*
- *The views of affected communities, landowners and occupiers, local authorities and other key stakeholders.*

Contemporary practice is to consider the provision of safe intersection stopping distances (SISD) as a minimum intersection separation distance on the basis that it provides the motorist on the main road to clear one potential conflict point (the first intersection) and then observe and react to a potential

conflict at the next intersection. This distance is 240m for an operating speed of 100km/h, and 170m for an operating speed of 80km/h.

Locating the proposed new road intersection at the western end of the site (i.e. between the side boundary and the power pole) would provide a 215m separation from Tupelo Place. While this is slightly less than the 240m design requirement based on observed through travel speeds, increased land use development on this section of Tram Road could potentially lower the through travel speed in this location. A lower through travel speed would be encouraged by extending the existing painted median eastwards along 100 metres of the site frontage. Consideration could be given towards locating the existing temporary speed limit digital signs 100m further east and/or imposing an 80km/h speed limit through the Swannanoa Village as per what has recently occurred at the Mandeville village.

These design features, combined with sealed shoulder widening to provide acceleration and deceleration lanes at the new intersection in accordance with accepted design practice will provide a safe connection to Tram Road.

6.3 Internal Road Layout and Connectivity

Locating the new intersection at the western end of the site also maximise the potential for internal connections to be made to the Church, the preschool and the school. It would also provide the opportunity to reconsider the provision of the existing direct site access to Tram Road used by the pre-school, and instead have this utilising the proposed new intersection.

6.4 Road Safety

Noting the earlier commentary regarding increased access frequency and increased crash rates, an analysis has been undertaken of reported crashes along Tram Road between State Highway 1 and Swannanoa. This section of Tram Road contains a number of intersections and rural-residential subdivisions with either local road or private lane connections to Tram Road. A second search of the NZTA reported crash database was undertaken for the most recent 5-year period (2015-2019) to detect crashes that occurred at or near driveways or rural residential subdivision points. Only two reported crashes were found and these are detailed in Table 6 on the next page:

Crash ID	Crash Date	Crash Description	Crash Factors	Road Conditions	Injuries
201746857	Saturday, 12/08/2017, 18:25	Van1 WDB on Tram hit SUV2 turning right onto AXROAD from the left	SUV2, failed to give way entering roadway from driveway, misjudged another vehicle	Dry, Dark, Fine	Non-Injury
201544451	Sunday, 06/09/2015, 16:30	SUV1 EDB on TRAM ROAD lost control but did not leave the road	SUV1, lost control - road conditions, ENV: strong wind	Dry, Bright, Fine	Non-Injury

Table 6: Reported crashes on Tram Road in the vicinity of accesses to rural residential subdivisions (2015-2019)

Only the first crash related to the existence or operation of the side access point. This is a remarkably low crash rate given the site access commentary provided in the NZTA Planning Policy Manual and not doubt reflects the straight alignment of Tram Road providing excellent sight distances, the low traffic generation of the various rural-residential developments aces form tram Road, and the notable gaps in the Tram Road through traffic flow.

If the design recommendations of this report are adopted, then there is nothing to suggest that a proposed new intersection at the western end of the 1275 Tram Road site will cause a reduction in road safety on this section of Tram, Road.

6.5 Recommendations for the Proposal

Should 1275 Tram Road be rezoned for Rural-residential purposes then it is recommended that:

- No direct site access from Tram Road.
- Any new intersection onto Tram Road be located as far as practicable towards the western end of the site, and preferably alongside the western site boundary. Any future site access would need to clear these poles with suitable sight distances past the poles being provided;
- The existing painted median be extended eastwards along 100 metres of the site frontage;
- Sealed shoulder widening to create acceleration and deceleration lanes be provided at the new intersection in accordance with accepted design practice;
- Consideration be given towards locating the existing temporary speed limit digital signs 100m further east and/or imposing an 80km/h speed limit through the Swannanoa Village.
- The internal road layout within the site be developed in a manner that provides for internal connections to be made to the Church, the preschool and the school.

7.0 ASSESSMENT OF OBJECTIVES AND POLICIES

7.1 Waimakariri District Plan

The proposal can be developed in a manner that is consistent with the objectives and policies relating to transport in the Waimakariri District Plan, in particular with the following:

Utilities and Traffic Management

Objective 11.1.1 *Utilities that maintain or enhance the community's social, economic and cultural wellbeing, and its health and safety.*

Policy 11.1.1.4 *A road hierarchy shall be maintained and protected to enable the District to function with minimal conflict between activities, traffic, and people.*

Policy 11.1.1.5 *New developments and activities in relation to their traffic generation characteristics should:*

- *a) locate on or establish primary access to an appropriate level of road within the road hierarchy;*
- *b) not have vehicular access to an inappropriate level of road in the hierarchy; and*
- *c) provide cycleways along arterial, strategic and collector roads where:*
  - *i. necessary to provide an identified transport or recreation function; and*
  - *ii. alternative opportunities do not exist within the road hierarchy.*

Policy 11.1.1.6 *Every site should have access that provides safe entry and exit for vehicles to and from the site to a road without compromising the safety or efficiency of the road or road network. Where a site has two or more road frontages access should be from the lowest road classification within the road hierarchy.*

The proposal can be developed in a manner that properly recognises the road hierarchy in that direct allotment access to Tram Road can be avoided.

An intersection can be developed at the western end of the site that will provide safe site access, and also provide opportunities for reduced through travel speeds through the Swannanoa village, and also provide internal connectivity to neighbouring sites.

The development will introduce about 360 trips per day which can be easily accommodated along Tram Road.

Subdivision and Development

Policy 18.1.1.1 - Growth and development proposals should provide an assessment of how:

— *the use, development, or protection of natural and physical resources affected by the proposal will be managed in a sustainable and integrated way; and*

— *the adverse effects on those resources and the existing community will be avoided, remedied, or mitigated.*

In particular, proposals should not be inconsistent with other objectives and policies in the District Plan, and show how and the extent to which they will:

(k) provide infrastructure for services and roading in a manner consistent with this District Plan;

(v) affect the demand for transport;

(w) provide choice in transport mode, particularly modes with low adverse environmental effects;

The proposal involves constructing a cul-de-sac in accordance with the road design requirements in Rule 30.1.1.9, which is the most appropriate road for the residential subdivision, and is therefore in a manner that is consistent with the District Plan. It will generate additional demand on the surrounding road network, by introducing about 360 trips per day along Tram Road in the vicinity of the site. As explained in Section 6 above, this demand is relatively minor and can be easily accommodated.

Furthermore, the proposed internal road design can include a footpath and a carriageway width that accommodates vehicles and cyclists. Therefore, while it is likely that the main mode of transport will be motor vehicles, there is some provision for pedestrians, cyclists and other modes of transport to connect with the surrounding area.

7.2 Canterbury Regional Policy Statement 2013

The following policy is relevant to the proposal:

Policy 6.3.9 Rural residential development

In Greater Christchurch, rural residential development further to areas already zoned in district plans as at 1st January 2013 can only be provided for by territorial authorities in accordance with an adopted rural residential development strategy prepared in accordance with the Local Government Act 2002, subject to the following:

4. Legal and physical access is provided to a sealed road, but not directly to a road defined in the relevant district plan as a Strategic or Arterial Road, or as a State highway under the Government Roading Powers Act 1989;

The proposal is for rural-residential development in an area not identified for this purpose in the Waimakariri Rural Residential Development Strategy 2010. However, from a transportation perspective, suitable and safe site access can be provided from Tram Road, and the internal site layout can provide the opportunity for internal connections to neighbouring land use activities. Direct allotment access from Tram Road can be avoided.

8.0 CONCLUSION

The proposal involves subdividing 1275 Tram Road, Swannanoa into 35-40 allotments for rural-residential purposes.

The site is ideally located from a transportation perspective for rural residential redevelopment as a result of the site location alongside existing rural residential and non-residential land use activity.

The site can be developed in a manner that avoids direct allotment access to Tram Road.

The necessary additional road intersection with Tram Road could be located with suitable separation from other nearby intersections such that a safe traffic environment along Tram Road can be maintained.

The site location alongside Swannanoa School and Preschool means that these activities could be included within an overall integrated site access strategy for this section of Tram Road.

The proposal is consistent with the objectives and policies relating to transport in both the Waimakariri District Plan and the Canterbury Regional Policy Statement.

The proposed rezoning, subject to the design recommendations made in this report, is able to be fully supported from a transportation perspective.

RESPONSEPLANNING
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7 July 2017

Waimakariri District Council
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Rangiora 7440

By email to: records@wmk.govt.nz

FEEDBACK ON OUR DISTRICT, OUR FUTURE – WAIMAKARIRI 2048 (DRAFT DISTRICT DEVELOPMENT STRATEGY)

Please find enclosed feedback on Our District, Our Future – Waimakariri 2048 (Draft District Development Strategy) of Mr Andrew McAllister.

If you want any further information regarding any matter raised in these comments please contact Andrew McAllister email: amac.nz1@gmail.com

Introduction

These comments are focused on Section 2.5 – Rural Area of Small Settlements of the District Development Strategy (DDS). The focus of these comments is on Rural Residential Development Approaches and Rural Development Approaches.

While comments are provided on general matters the focus of the comments relate to potential future use of land at 1275 Tram Road. The owner of the land seeks that the Waimakariri District Council identify this land as an potential area for future rural residential development in the District Development Strategy, any subsequent review of the Rural Residential Development Strategy and the future review of the Waimakariri District Plan.

In addition to addressing rural residential development options for 1275 Tram Road the feedback supports the retention of the existing rural subdivision standards in this area of 4ha.

The key characteristics of this land and specific feedback on the District Development Strategy are outlined in the sections below.

Characteristics of 1275 Tram Road

The land at 1275 Tram Road, RD6 Rangiora is legally described as Pt Rural Sec 8183 Blk XII Rangiora SD. It is 21.245 hectares. The land is subsequently referred to in these comments as the 'site'. A map showing the site is attached at the end of this feedback.

The site is immediately adjoins existing rural development areas within Swannanoa - the land to the immediate west of the site is the Swannanoa Fields Rural Residential Subdivision. The site is directly adjoins the Swannanoa School and Pre-school.

The site can provide for an integrated and sensible additional future area for rural residential development. It can do this in a way that ensures future development is connected and integrated with the existing rural residential development and local facilities, such as the school in Swannanoa.

It is recognised that before any actual rezoning and development takes place further work will be required to address specific servicing matters. However, preliminary information available shows that there are no constraints that would render further consideration or identification of this site as a future rural residential development area inappropriate. Preliminary matters considered include:

With respect to water supply:

a. There is an existing 50mm main on the south side of Tram Road and a 150mm main on the north side. It is understood that while the 150mm main would have capacity for rural development (4 hectare lot size) of the block, network upgrades may be needed for more rural residential development.

b. As a restricted scheme any new connections to the Mandeville water supply scheme will require onsite tanks and pumps as per the Waimakariri District Council Engineering Code of Practice. This could be addressed for this site.

With respect to wastewater:

a. There is an existing 90mm pressure sewer on the south side of Tram Road. It is understood that it is likely that the 90mm pressure sewer would have capacity for rural development of the block, although network upgrade may be needed to facilitate rural residential development.

b. Any new connections will require a septic tank system that pumps into the Mandeville public reticulation as per the Waimakariri District Council Engineering Code of Practice. This could be addressed for this site.

Subject to determination of future water and wastewater upgrades by Waimakariri District Council the site could be feasibly serviced. Consideration of future upgrading would likely occur through the future review of the Rural Residential Development Plan. Identification of the site now as a potential future development area would provide focus in the consideration of future servicing options.

There is an existing drainage channel that crosses the site approximately 90m, which could be maintained and protected as part of any future development options. There is also stock water race that flows across the site (from west to east) approximately 270m then along the eastern boundary (in a northerly direction) for approximately 250m. Any part of these stock water races on the subject site could be maintained and protected as part of any future development. This would be addressed in detail at the time any rezoning occurred as part of the District Plan process, or at the time of any subdivision.

Any land drainage would be designed to ensure stormwater neutrality and would likely be subject to specific consideration through a resource consent process from Environment Canterbury. This would be addressed in detail at the time any rezoning occurred as part of the District Plan or Plan Change process.

Much of the site is located with a low hazard flooding area. There is a small area in the central part of the site that is in a medium hazard area. At the time the re-zoning of this property occurred specific consideration of the management of any specific flood risk and building floor levels would be addressed.

Overall the characteristics of the site mean that there is merit to the Waimakariri District Council considering the site as a potential rural residential development area.

Specific feedback on the District Development Strategy

Rural Residential Development Approaches (Page 24)

Option 1 being "*New rural residential areas identified and co-located with existing rural residential areas or on the edge of existing towns. This assumes no intensification in existing rural residential areas*" is supported. A part of the character of the Waimakariri District is the ability to live within rural residential areas. It is important to also provide this opportunity to future residents of the District.

As identified in the previous section of this feedback the site at 1275 Tram Road is worthy of consideration as a future new rural residential area. The site would provide for integrated development with other rural residential development existing in Swannanoa, and is situated in close proximity to the existing school and pre-school.

There are advantages in locating future areas close to existing development areas, and community facilities. This reinforces a sense of community which has been identified as important for people living within the Waimakariri District. If in the future additional services are desired and developed (such as is occurring in and around Mandeville presently) having new rural residential development areas connected to existing areas provides a focused location for future activities and services. It also enables infrastructure services to be provided in a more efficient way.

Option 2 "*Intensification within existing rural residential areas (e.g. enable larger lots to be subdivided down to 2500m2). This assumes no new rural residential areas provided*" is not supported.

If there is a desire to provide to provide different section sizes and housing options within rural residential areas (such as subdividing down to 2500m2 (identified as part of Option 2 related to existing areas) then consideration should be given to achieving this through a combination of Options 1 and 2.

It is determined that there may be merit in providing a greater range of options in the size of rural residential sections able to be created (such as to 2500m2) this may be better achieved by providing this opportunity in new areas, rather than intensification of existing areas.

It can be difficult to achieve intensification in existing areas in an efficient manner that does not undermine the character of development in areas. Often retrofitting services in existing areas can be challenging, as infrastructure was designed and sized to accommodate the existing development, not future development. It can also be challenging to effectively achieve integration in roading, walkways and servicing requirements when retrofitting existing areas. Retrofitting areas for intensification can often be expensive and inefficient.

In addition, with intensification in existing areas, there can be conflicting expectations of what the appropriate character for people living within the area is. A number of people have purchased rural residential sections with the expectation that the character of the area will remain as existing and not be subject to further subdivision- while others may be comfortable subdividing. With the significant number of individual owners in existing rural residential areas it may be difficult to achieve a consistent and high quality overall character for an area through intensification.

Another option to consider is that is that some 'new' rural residential areas could be identified for a higher density of rural residential development. This would provide for a wider range of housing options, yet avoid issues with intensification of existing areas. It typically easier to provide for greater density in new areas (designed as an integrated whole at the time of development with roading patterns and walkways) rather than trying to retrofit existing development areas. In addition there will be no clash in expectations as the size of properties and character expectations will be clear known at the time any properties are purchased.

The land at 1275 Tram Road could provide a suitable site for consideration for more intensive rural residential development as it its close proximity to Swannanoa School .

Rural Development Approaches (page 24)

Option 1 being "*Increase the minimum lot size (from the current 4 hectare District Plan minimum) throughout the Rural Zone*" is not supported.

Option 2 being "*Increase the minimum lot size in parts of the Rural Zone*" is not supported if any increase in the minimum lot size is proposed in the area around Swannanoa and Mandeville.

It is considered that in some locations, such as around Swannanoa consideration should be given to enabling rural subdivision to below 4ha, for example enabling 2 ha properties in some locations. This would provide greater choice in rural housing options in appropriate locations. The area between Mandeville and Swannanoa could be an appropriate location for smaller rural lots to be created.

If the ability for smaller (2ha) rural lots is not provided then retaining the status quo (4 hectare minimum lot size) is supported in areas such as the site at 1275 Tram Road which is adjacent to existing rural residential development and community activities of the Swannanoa School and Pre-school.

For properties of around 20 hectares the range of use the land can be put to for an economic farming activity are limited. This is particularly the case for properties, such as the subject site (21 hectares in size), which are located in close proximity to residential and rural residential areas. This is due to the increased potential for reverse sensitivity effects to occur, and the different expectations of people living in the rural area and those farming in rural areas being realised. We have a current R.C for 4ha lots for this Property 5x4h But we do not want to act on this currently.
Given this it is important to still provide options for the future use of this land. This includes the ability to provide small scale properties (2ha or the status quo of 4ha) in rural areas. This provides a positive lifestyle for people wanting to live in the rural environment, but not commit to full time farming. The existing area around Swannanoa and Mandeville are locations where the minimum subdivision standard should not be increased beyond 4 hectares and consideration could be given to providing some rural opportunities down to 2ha.

The existing character of the Waimakariri District is one that provides a range of opportunities for people wanting to live in the rural environment. These opportunities are important to retain for existing landowners (providing flexibility as to the future use and subdivision of their land) and importantly will continue to provide for people wanting lifestyle opportunities in rural areas.

If the Waimakariri District Council were to consider increasing the minimum lot size this should not apply District wide. The existing character of areas should be considered when specifying the appropriate size. For those areas near existing rural residential development, such as between Swannanoa and Mandeville, if opportunities for smaller rural lots is not provided, then the minimum size of 4ha should be retained.

Yours sincerely

Jane Whyte
DIRECTOR

End: Attachment - Site Plan 1275 Tram Road

1276 Tram Road

Hello Andrew,

Thank you for your email below and letting us know your thoughts regarding your land at 1275 Tram Road. The Rural Residential Development Strategy is a Council adopted document now that identifies growth locations for rural residential density development to the north and west of the existing zone. That does mean there continues to be no plans to extend the current rural residential zone to the east. The Regional Policy Statement also stipulates that new rural residential zoning can only occur in the Greater Christchurch area in accordance with an adopted Rural Residential Development Strategy so this does exclude your property to the east.

In saying that, we have built in a check point into the Strategy for 2022, to reconcile it against other work including the review of the Waimakariri District Plan and to check the quantum of anticipated and/or actual land rezoned for rural residential use as an outcome of this Strategy and the District Plan Review. Of course there is also the opportunity to submit on the Proposed District Plan mid-next year, which is the key vehicle through which the Rural Residential Development Strategy (RRDS) will be implemented. The project webpage contains more detailed commentary on implementation (and also contains all relevant documents). To the east one land owner to do complete development. The north there is 9 different land owners. Seven mile property ltd is comitted to Development in Wmk. (A. McAllister)

After the RRDS was adopted, and before the Proposed District Plan is released for public consultation mid next year, we will be developing the draft overlay zone that will be included in a Proposed District Plan. This will further refine the actual land intended to be rezoned to rural residential, in our 4 growth areas, including Swannanoa (to north and west). It is anticipated that the rezoning will occur through the District Plan Review process. We encourage landowners in the overlay zone (which will be included in the Proposed District Plan next year) to submit on the Proposed District Plan. Landowners interested in having their land rezoned will need to provide detailed assessments to support their submission that demonstrate their land is suitable for rezoning for rural residential use. These investigations typically address flood hazard; stormwater, water and wastewater servicing; transportation; geotechnical; and soil contamination. District Plan Review decision makers will then decide, based on the evidence provided, whether the land should be rezoned for rural residential use. This would then occur as part of the final District Plan, following the consultation process.

I appreciate your comment regarding the importance of planning / timing – we intend to engage with landowners in the overlay zone areas as part of the District Plan Review process in due course.

I hope this helps.

Regards, Heike Downie.

Pegasus or Waikuku schemes which have capacity for the 50 to 100 hypothetical lots. Refer to Table 1 for costs associated with connecting to the reticulated network.

Wastewater – The area is not currently connected to a reticulated wastewater network so wastewater disposal is via individual septic tanks and disposal fields. However, if there was sufficient growth to require it and make it viable, the area could connect to the Eastern District Sewer Scheme, which has capacity for the 50 to 100 hypothetical lots (via either the Pegasus or Waikuku reticulated wastewater networks). Refer to Table 1 for costs associated with connecting to the reticulated network.

Drainage and flood hazard – The area is within a rated drainage area. The area is subject to some medium to high flood hazard to the north and north-west of the existing Residential 4B area. It should be noted the area could also be subject to coastal influences on groundwater associated with sea level rise. Any new development should avoid any significant overland flow paths shown on Council's Localised Flood Hazard Modelling for the 0.5% Annual Exceedance Probability event.

Table 1: Anticipated Development Contributions and other additional servicing costs per lot based on a hypothetical 100 lot rural residential development

Note: Development Contributions provided are based on the 2018/2019 Development Contributions which are subject to change as part of the 2019/2020 Annual Plan, which is currently being finalised and includes updated 2019/2020 Development Contributions.

Table 1

Area	Water Development Contributions per lot	Water additional costs per lot	Wastewater Development Contributions per lot	Wastewater additional costs per lot	TOTAL
Swannanoa	$2,852	N/A	$18,598	$16,000 for onsite reticulation, pump and chamber	**$37,450**
Ashley / Loburn	$3,970	N/A	$5,434	$16,000 for onsite reticulation, pump and chamber $8,000 for wastewater network connection works	**$33,404**
Oxford	$13,390	N/A	$2,054	$16,000 for onsite reticulation, pump and chamber	**$31,444**
Waikuku	$4,136	$15,000 for water network connection works	$5,434	$15,000 for wastewater network connection works $16,000 for onsite reticulation, pump and chamber	**$55,570**

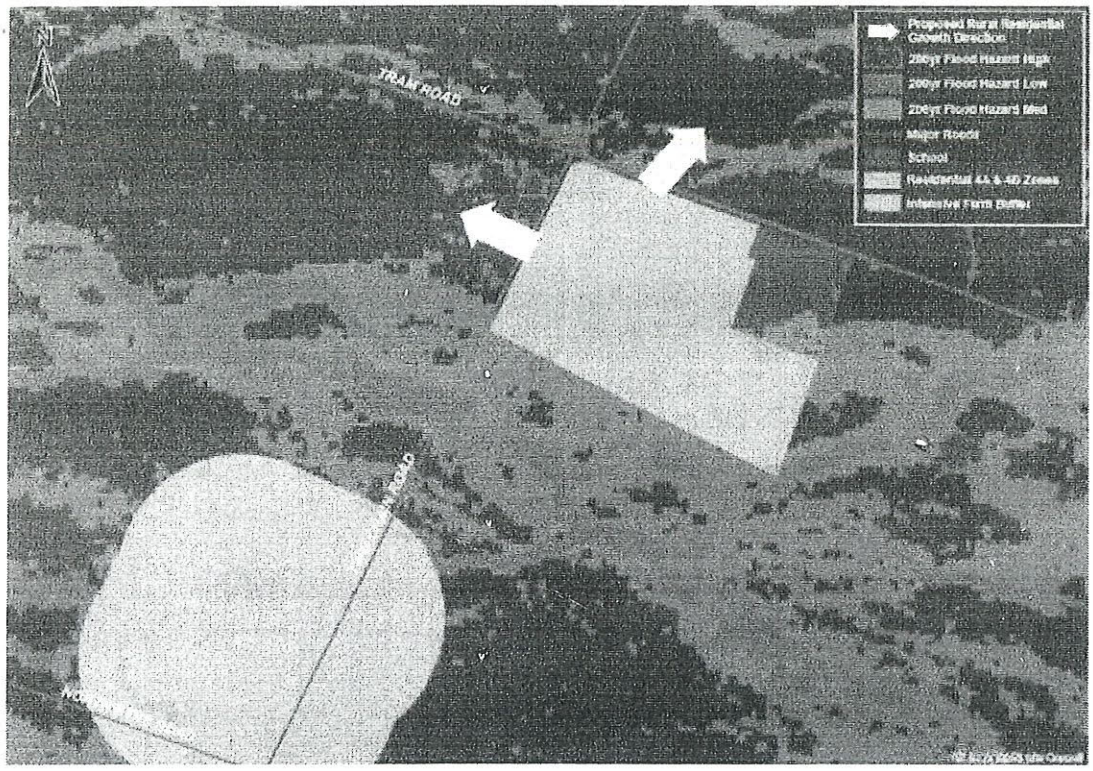


Figure 1. Swannanoa proposed rural residential growth direction

Fourty-four submitters provided comments relevant to Swannanoa as a proposed location for further rural residential development. Around 24 individual submitters support proposals to extend Swannanoa through further rural residential development. Another 13 oppose further rural residential development at Swannanoa.

Among those who support further rural residential development at Swannanoa, growth is considered beneficial to support the local school and established social and community infrastructure. The avoidance of versatile soils is applauded, and some landowners are keenly interested in subdividing their properties to meet rural residential densities. A cluster of such submitters, for example, reside in the land west of Two Chain Road and north of Tram Road.

Some alternative / additional growth directions in and around Swannanoa are suggested by some submitters:

- To east of existing rural residential zone, along from the school – safer for school children not needing to cross Tram Road; could serve to expand school for community space or additional parking; infrastructure in place; avoids further traffic congestion and parking issues; provides connectivity to Mandeville. Landowner is in support and provided flood hazard assessment which stipulates flow paths cannot be obstructed but can be designed around; and traffic assessment. School in support of eastern growth direction.
- Further west of Two Chain Road to include 1419 and 1401 Tram Road
- To the north
- Block of land bounded by Tram Road, Two Chain Road, North Eyre Road and No 10 Road

There are various reasons provided by submitters who oppose further rural residential development at Swannanoa. These include that Swannanoa is an undesirable location lacking key amenities; is too

NOTES
_Subdivision proposal plan only.
_Areas and dimensions subject to final survey.
_Plan prepared for the purpose of a discussion document).

Note : Scandlyn Surveying accepts no responsibility for the use of this plan for any other purpose other than that intended (discussion document for planning purposes related to plan change).

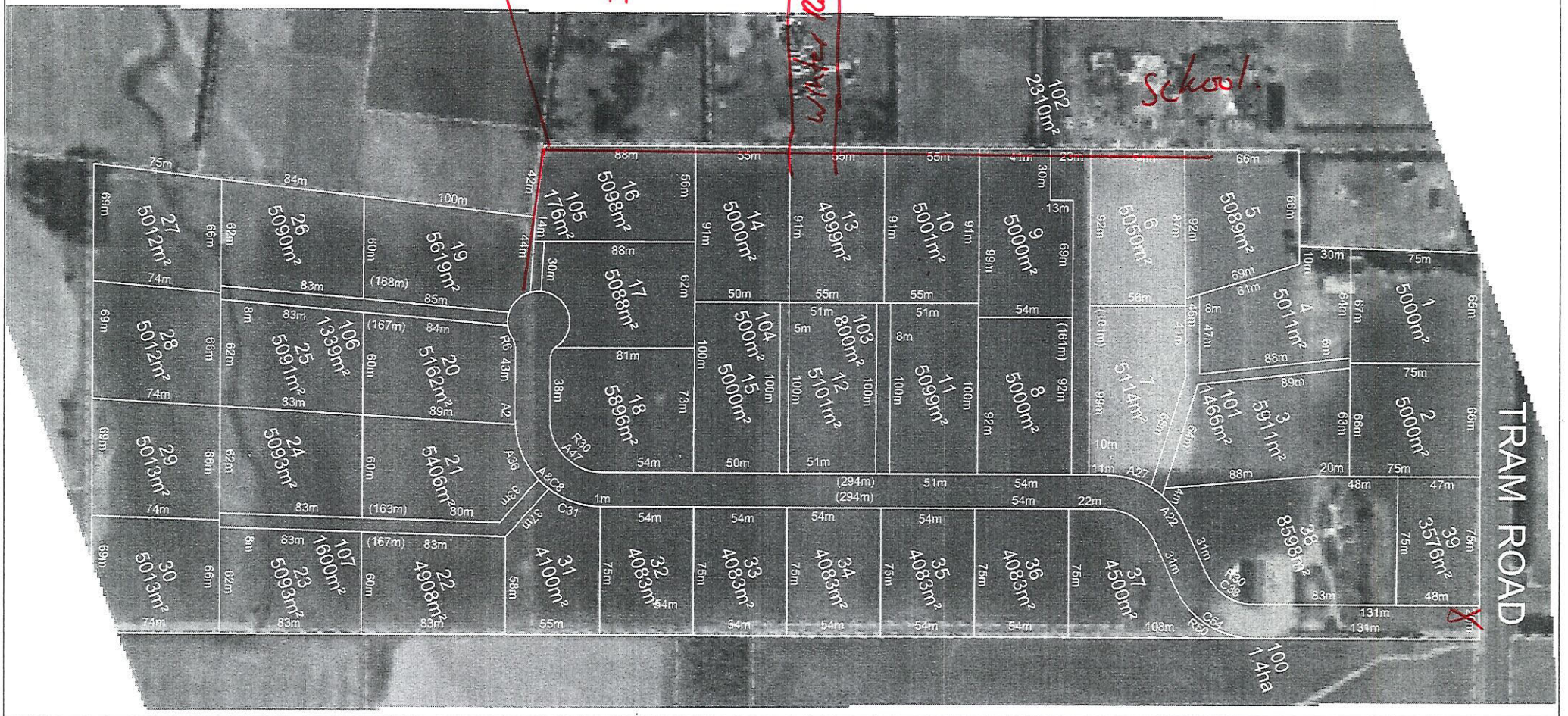
Note : Scandlyn Surveying retains ownership and copyright of this drawing.

Note : Areas 101, 103–107 area access areas.
Area 100 is to vest as road.
Area 102 is to vest as local purpose reserve.

COPY FOR WMDC

A.J. McAllister
1275 TRAM RD

walkway/bikes. This is not the layout we would be using (old works)



Waimakariri District Council
Comprised in CB410F/1046 CT area 21.2460ha

Original scale 1: Format (A3)

Lots 1–39, 100, 101 being a proposed subdivision of Pt.RS 8183

Prepared by: Scandlyn Surveying Ltd

RANGIORA

Hi Andrew

21.24 La

Below is a high level overview of the 3 waters related services for your property at 1275 Tram Road. I have attached associated service plans for reference.

Water Supply – There is an existing 50mm main on the south side of Tram Road and a 150mm main on the north side. It is likely that the 150mm main would have capacity for rural development (4 hectare lot size) of the block, although network upgrades would likely to be needed for more dense rural residential development. The Mandeville water supply scheme is a restricted scheme so any new connections will be required to have onsite tanks and pumps as per our Engineering Code of Practice (ECOP).

Wastewater – There is an existing 90mm pressure sewer on the south side of Tram Road. Like water supply, it is likely that the 90mm pressure sewer would have capacity for rural development of the block, although network upgrade would likely to be needed for rural residential development. The Mandeville sewer scheme is a STEP scheme so any new connections will be required to have a septic tank system that pumps into the public reticulation as per our ECOP.

Maybe we can hold waste water onsite & Pump to main line during early hours of the morning?

Drainage – The site generally falls in an easterly direction towards neighbouring properties. There is an existing drainage channel that crosses the site approximately 90m from the rear boundary, which will need to be maintained and protected. Any drainage system will need to ensure stormwater neutrality is provided such that there are no adverse offsite effects. The soils in the area have medium ground soakage, therefore testing will be required to confirm that ground soakage is possible for this site. A resource consent for discharge of stormwater may need to be obtained from Environment Canterbury.

Stockwater – There is a stockwater race (R3J-1) that flows across the site (from west to east) approximately 270m from the rear boundary and then along the eastern boundary (in a northerly direction) for approximately 250m that will need to be maintained and protected. There is also a stockwater race (R3J-1A) located on the south site of the rear boundary.

Flooding – The 200 year flood hazard maps show low hazard flooding across large parts of the site and medium hazard flooding through the central part of the site. For rural type development it would be appropriate to avoid the medium hazard areas and set the minimum floor levels at 600mm

above existing ground level in the low hazard areas and 400mm above ground level in the clear (no hazard) areas. For rural residential development a flood risk assessment would likely be a requirement of any plan change.

I trust this provides the information you require.

Regards

Kalley

Kalley Simpson | 3 Waters Manager

3 Waters

kalley.simpson@wmk.govt.nz

Customer Service: 0800 965 468 (0800WMKGOV)

Phone: 03 311 8902 | Ext: 8872

Mobile: 0212233428

Brian Price
Principal
Swannanoa School
Tram Road
R.D. 6 RANGIORA 7476

4th April 2019.

Submission to Waimakariri Council,

We agree with the proposed development around the immediate area of Swannanoa School and the Swannanoa Preschool which share the same 5 hectare site. The development makes sense as there is land available which allows further growth in the community and at the school. We are currently at capacity with our roll over 320 but we have managed roll-growth successfully and have good planning around future roll-growth and are in dialogue with the Ministry of Education.

We believe the school has responded well to the growth of the village and surroundings over the last five years but feel there is some infrastructural improvements that are necessary to ensure future growth is managed well, and in particular a safe community for our children is created.

The following need to be considered as part of our submission.

The effect of increased housing on the west side of the school and towards Oxford would increase the traffic volumes along Tram Road, currently 100kph. This reduces between 0830-0900 and 1500-1530 on school days to 60kph approximately 250m each side of the school, and a further reduction to 20kph when school buses are present. Currently we have two school buses, increasing to three by the end of the year with a further increase to four indicated to us by the Ministry of Education.

Our view is that the legal speed reductions are poorly adhered to and creates safety issues, particularly as the school grows. We see two possible solutions to this:
1) a further reduction in speed during school hours with a roading design that encourages passing traffic to reduce speeds,
and/or
2)a layby designed where up to four buses can safely pull further off the road - this would allow current speeds remain the same

We understand the current suggested area for development of Swannanoa is in the area west/nor-west of the school, in the vicinity of Tram and Two Chain Roads. While we do not specifically object to this, development in the land immediately East of the school along Tram Road would likely mean that further increases in traffic and necessary parking in or around the school are minimised. we would offer walkway/cycleway to schools.

Parking on the side of Tram Road is of concern as it reduces visibility, both East and West, and this is compounded by the increasing use of the recently refurbished Swannanoa Community Hall, tennis courts and Domain that are directly opposite the school. We would like to see an improvement in the parking infrastructure supporting the domain and hall.

SWANNANOA SCHOOL
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Brian Price
Principal
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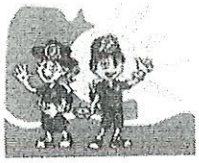

Biking and walking to school.

As well as being a physically active school community, we have a rich programme around land-based learning, i.e. environmental focus, sustainability focus and seeds of learning, with many families who would like to walk and bike to school. Currently due to the lack of safe connections our parent base choose to drive which would change if better and safer walk and cycle access was created.

We would like to see these connections created in particular to where the recent development has occurred, including to the Mandeville Commercial area, Mandeville Road subdivisions and Mandeville Sports Ground, the area of McHughs Road, Roscrea Place, Braeburn Estate subdivision and Millburn Estate subdivision with a view to ensure the appropriate connections are created to any further development North and West.

Our school has a very large participation rate in the local touch rugby tournament held at Mandeville Sports Ground and strengthening of these walk/cycleways would also strengthen the connection to our Mandeville Village and create a stronger feel.

A pedestrian underpass outside the school is essential to improve safety for the children crossing the 100kph Tram Road to access the properties on the north side. This would also improve safety around bus use as buses would not need to make U-turns due to being able to utilise both sides of the road.

In summary, we support further housing development, and are positioned well to cope with growth but feel it's important to improve safety around commuting in and around the school and wider Swannanoa/Mandeville community

Blair Andrews
Board of Trustees Chairperson
Swannanoa School
027 237 2197
blair.andrewsnzl@gmailcom

Brian Price
Principal
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Chorus Network Services
PO Box 9405
Waikato Mail Centre
Hamilton 3200
Telephone: 0800 782 386
Email: tsg@chorus.co.nz

CHORUS

Sub Div Ref: OHK47039
Your Ref:

4 July 2018

Andrew McAllister

Attention: **Andrew McAllister**
Dear Sir / Madam

SUBDIVISION RETICULATION – OHK: 1275 Tram Road, Swannanoa. 39 Lots (Lots 1 - 39) Simple Estimate

Thank you for your enquiry regarding the above subdivision.

Chorus is pleased to advise that, as at the date of this letter, we would be able to provide ABF telephone reticulation for this subdivision. In order to complete this reticulation, we require a contribution from you to Chorus' total costs of reticulating the subdivision. Chorus' costs include the cost of network design, supply of telecommunications specific materials and supervising installation. At the date of this letter, our estimate of the contribution we would require from you is $71,760.00 (including GST).

We note that (i) the contribution required from you towards reticulation of the subdivision, and (ii) our ability to connect the subdivision to the Chorus network, may (in each case) change over time depending on the availability of Chorus network in the relevant area and other matters.

If you decide that you wish to undertake reticulation of this subdivision, you will need to contact Chorus (see the contact details for Chorus Network Services above). We would recommend that you contact us at least 3 months prior to the commencement of construction at the subdivision. At that stage, we will provide you with the following:

- confirmation of the amount of the contribution required from you, which may change from the estimate as set out above;

- a copy of the Contract for the Supply and Installation of Telecommunications Infrastructure, which will govern our relationship with you in relation to reticulation of this subdivision; and

- a number of other documents which have important information regarding reticulation of the subdivision, including - for example - Chorus' standard subdivision lay specification.

Yours faithfully

Toko Taitua
Network Services Coordinator